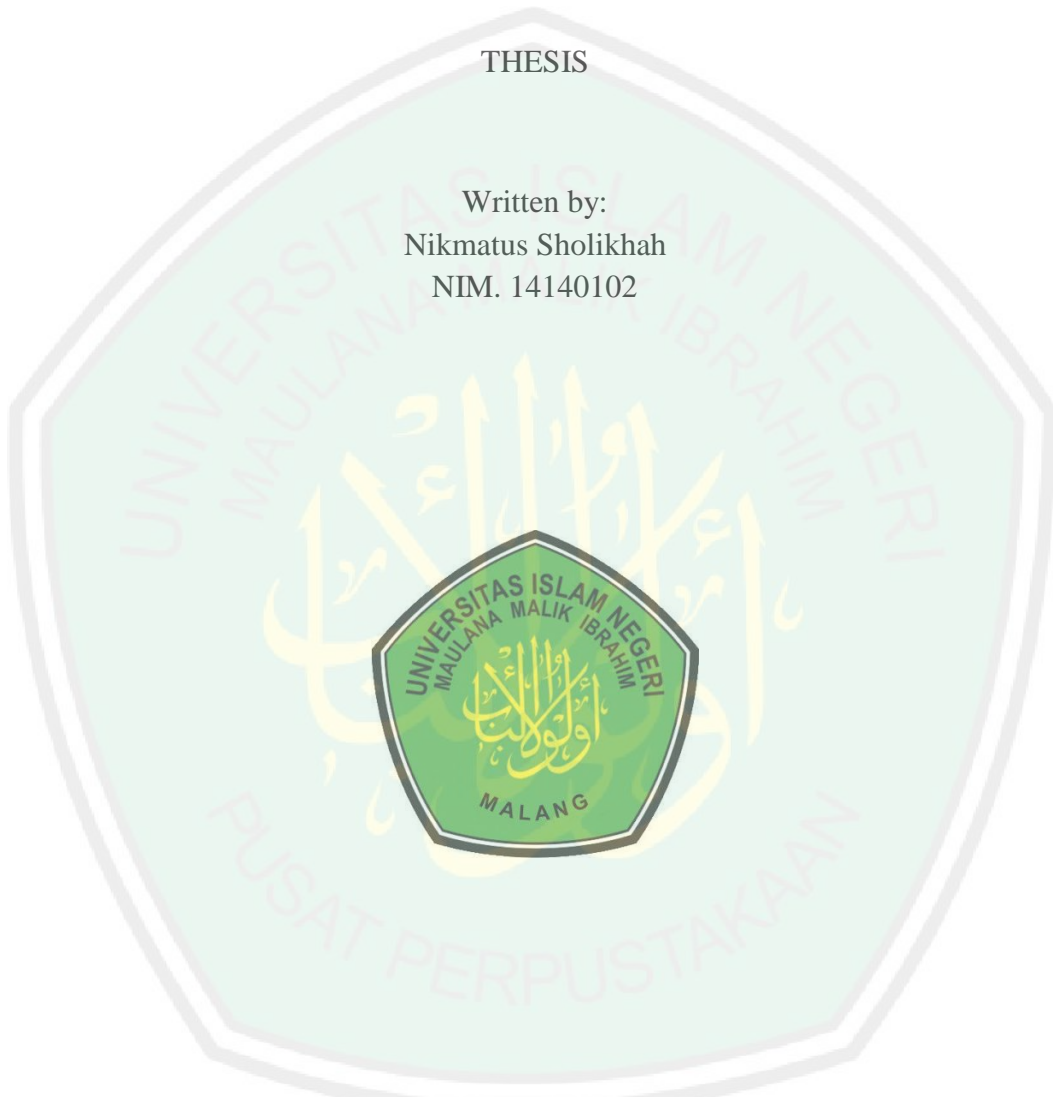


**THE INFLUENCE OF REALISTIC MATHEMATIC EDUCATION
(RME) ON 4th GRADE STUDENT'S ACHIEVEMENT AT SDN
PERCOBAAN 1 MALANG**

THESIS

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**ISLAMIC ELEMENTARY EDUCATION DEPARTMENT
TARBIYAH AND TEACHER TRAINING FACULTY
MAULANA MALIK IBRAHIM STATE ISLAMIC UNIVERSITY
MALANG
MAY, 2018**

**THE INFLUENCE OF REALISTIC MATHEMATIC EDUCATION
(RME) ON 4th GRADE STUDENT'S ACHIEVEMENT AT SDN
PERCOBAAN 1 MALANG**

THESIS

Presented to Tarbiyah and Teacher Training Faculty Maulana Malik Ibrahim State Islamic
University Malang
in Partial Fullfillment of the Requirements for *Degree of Sarjana Pendidikan* (S.Pd)

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MALANG
MAY, 2018**

APPROVAL SHEET

**THE INFLUENCE OF REALISTIC MATHEMATIC EDUCATION (RME)
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MALANG**

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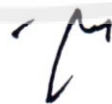


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MALANG**

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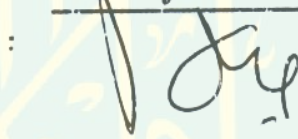
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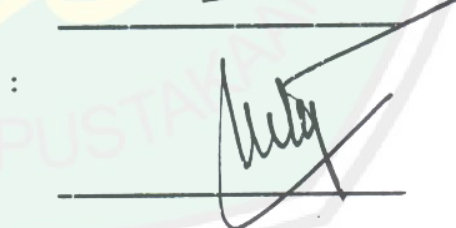
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THE OFFERINGS PAGE

الحمد لله ربّ العالمين

Praise be to God, the ruler of the universe

*Praise to God Almighty, we show you the greetings and font to the
Prophet Muhammad*

*Gratitude spoken over and health that Allah gave to his servant,
by the favour of God given to me so I can finish this thesis.*

*This thesis I dedicate to those who always mendampingiku in each
of my feet.*

*Dear parents (Mr. Suwito and Miss. Siti Kumaiyah) who always
give morale, motivation and discipline in order to fast finished this
thesis as well as material support, prayer and compassion of
encouragement you guys are number one in each of my feet, who
always give advice to me, and guided toward a good road which is
blessed of God Almighty.*

*And to those closest to me, who can not mention one by one, thanks
for guide, assist and facilitate in this thesis writing process and
thank you for the prayers you guys during this prayer, you guys
on divine Robbi and passion make all of you.*

*To all my friends PGMI 2014 thanks for your help and support
during this time. And thank you to all who have helped this thesis,
a finished without you all I am not able to finish well.*

*There is no word other than the word pronounced worthy of
gratitude and thanks. Without any spoken words from my lips, I
say just thousands of mothers thank you may God ALMIGHTY
repay a kindness you all.*

MOTTO

وَعَلَّمَ آدَمَ الْأَسْمَاءَ كُلَّهَا ثُمَّ عَرَضَهُمْ عَلَى الْمَلَائِكَةِ فَقَالَ أَنْبِئُونِي بِأَسْمَاءِ هَؤُلَاءِ إِنْ كُنْتُمْ صَادِقِينَ

Dan Dia mengajarkan kepada Adam nama-nama (benda-benda) seluruhnya, kemudian mengemukakannya kepada para Malaikat lalu berfirman: "Sebutkanlah kepada-Ku nama benda-benda itu jika kamu mamang benar orang-orang yang benar!" (Al-Baqarah 2:31)¹

¹ Al-Qu'an dan Terjemahnya, 2011, (Bandung: Jabal). p.8

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in

Malang

Assalamua'alaikum Wr.Wb.

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Title of Skripsi : **The Influence Of Realistic Mathematic Education (RME)**

On 4th Grade Student's Achievement At SDN Percobaan 1 Malang

is considered **acceptable** to defended after being intensively read and regulary consulted in the area of research content, language, and writing composition.

Wassalamu'alaikum Wr.Wb.

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CERTIFICATE OF SKRIPSI AUTHORSIP

I hereby declare that this skripsi is originally written by Nikmatus Sholikhah, student of Islamic Elementary Education Department (PGMI) as the requirement for degree of Sarjana Pendidikan (S.Pd), Maulana Malik Ibrahim State Islamic University, Malang. This research writing does not incorporate any material previously written or published by other parties to achieve the other *Sarjana* status of other Higher Tertiary Education, except those which are indicated in the notes, quotation, and bibliography. Therefore, I am the only person who is responsible for the thesis if there is any objection or claim from others.

Malang, May 17th, 2018

Autor,



Nikmatus Sholikhah

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THE PREFACE

Assalamualaikum Wr. Wb.

Alhamdulillah, praise over the presence of Almighty God. Who has bestow her grace, as well as hidayahNya, so that the author can complete this final task title ” **The Influence Of Realistic Mathematic Education (RME) On 4th Grade Student’s Achievement At SDN Percobaan 1 Malang**” that may be far from perfection, and if this perfect learning activities solely because of the instructions of the Almighty.

Blessings and greetings may remain expressed to our Lord, the Prophet Muhammad. Who has been the Treasury uswatun brought the glow of righteousness (*dinul islam*), so until this very second we still capable of wading through life and life based on faith and taqwa.

As this thesis, not terselesainya regardless of the guidance, assistance and support from the various parties. Therefore, the author deserves to be thanked that expresses to the Honorable to:

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3. H. Ahmad Sholeh, M.Ag as Chairman of Islamic Elementary Education Department (PGMI) of Tarbiyah and Teacher Training Faculty Maulana Malik Ibrahim State Islamic University Malang.
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Finally, only the presence of Almighty God. author of pray may the kindness they received at his side and become the righteous always so many reward. *Amen yaa rabbal'alam.*

The author has sought with the greatest extent possible in the finish this thesis may be useful in enriching education and science khasanan can also be used as one source of reference for the next interested researchers examine the same. Therefore the criticisms and suggestions of building remains the author of expect.

Wassalamu'alaikum Wr. Wb.

Malang, May 17rd, 2018

Author

PEDOMAN TRANSLITERASI ARAB LATIN

Penulisan transliterasi Arab-Latin dalam skripsi ini menggunakan pedoman transliterasi berdasarkan keputusan bersama Menteri Agama RI dan Menteri Agama Pendidikan dan Kebudayaan RI no.158 tahun 1987 dan no. 0543 b/U/1987 yang secara garis besar dapat diuraikan sebagai berikut:

A. Huruf

ا	=	a	ز	=	z	ق	=	q
ب	=	b	س	=	s	ك	=	k
ت	=	t	ش	=	sy	ل	=	l
ث	=	ts	ص	=	sh	م	=	m
ج	=	j	ض	=	dl	ن	=	n
ح	=	<u>h</u>	ط	=	th	و	=	w
خ	=	kh	ظ	=	zh	ه	=	h
د	=	d	ع	=	'	ء	=	,
ذ	=	dz	غ	=	gh	ي	=	y
ر	=	r	ف	=	f			

B. Vokal Panjang

Vokal (a) panjang = â

Vokal (i) panjang = î

Vokal (u) panjang = û

C. Vokal Diftong

أَوْ = aw

أَيَّ = ay

أُوَّ = û

إِيَّ = î

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ABSTRAK

Sholikhah, Nikmatus, 2018. *Pengaruh Pendekatan Realistic Mathematics Education (RME) terhadap Hasil Belajar Siswa Kelas IV Pada Pelajaran Matematika di SDN Percobaan 1 Malang*. Skripsi. Jurusan Pendidikan Guru Madrasah Ibtidaiyah. Fakultas Ilmu Tarbiyah dan Keguruan. Universitas Islam Negeri Maulana Malik Ibrahim Malang.
Pembimbing: Ulfah Muhayani, M.PP.

Realistic Mathematics Education (RME) yang diterjemahkan sebagai pendidikan matematika realistik (PMR), adalah sesuatu pendekatan belajar matematika yang dikembangkan sejak tahun 1971. Kegiatan ini menganggap bahwa matematika adalah kegiatan manusia, yaitu suatu kegiatan untuk menemukan kembali ide dan konsep matematika melalui eksplorasi masalah-masalah nyata. Sesuai dengan dari hasil observasi yang telah diperoleh peneliti, bahwa pembelajaran matematika di kelas IV SDN Percobaan 1 Malang belum menerapkan pendekatan *Realistic Mathematics Education* (RME), Oleh karena itu peneliti menerapkan pendekatan tersebut di SDN Percobaan 1 Malang untuk meningkatkan hasil belajar.

Tujuan Penelitian ini adalah untuk: (1) mendeskripsikan proses pembelajaran menggunakan pendekatan *Realistic Mathematics Education* (RME) untuk meningkatkan hasil belajar siswa, (2) mendeskripsikan peningkatan hasil belajar matematika siswa setelah menggunakan pendekatan *Realistic Mathematics Education* (RME), (3) mengetahui pengaruh pendekatan *Realistic Mathematics Education* (RME) terhadap hasil belajar siswa kelas IV pada pelajaran matematika di SDN Percobaan 1 Malang.

Untuk mencapai tujuan di atas, digunakan pendekatan penelitian ini menggunakan pendekatan kuantitatif dengan jenis Eksperimen. Jenis eksperimen yang digunakan adalah *Pre-Experimental Design* karena masih terdapat variabel luar yang ikut berpengaruh terhadap terbentuknya variabel dependen. Yaitu hasil belajar matematika (variabel dependen) tidak hanya dipengaruhi oleh pendekatan *Realistics Mathematics Education*.

Hasil dari penelitian pengaruh pendekatan *realistic mathematic education* (RME) terhadap hasil belajar siswa kelas IV di SDN Percobaan 1 Malang yaitu terdapat pengaruh pada pendekatan *realistic mathematics education* (RME) terhadap hasil belajar siswa siswa kelas IV di SDN Percobaan 1 Malang. Pengaruh tersebut sangat rendah. Hal ini dibuktikan dari hasil analisis uji-t sampel berpasangan dengan nilai Sig. lebih besar 0,05 yaitu $0,000 < 0,05$ dengan derajat kebebasan 0,05.

Kata Kunci: Pendekatan *Realistic Mathematics Education* (RME), Hasil Belajar.

ABSTRACT

Sholikhah, Nikmatus, 2018. *The Influence Realistic Mathematics Education (RME) On 4th Grade Student's Achievement at SDN Percobaan 1 Malang*. Thesis. Islamic Elementary School Education Department. Tarbiyah and Teacher Training Faculty. Maulana Malik Ibrahim State Islamic University Malang.

Advisor: Ulfah Muhayani, M.PP.

Realistic Mathematics Education (RME), translated as *Pendidikan Matematika Indonesia* (PMR), is a mathematical learning approach developed since 1971. This activity assumes that mathematics is a human activity, an activity to reinvent mathematical ideas and concepts through the exploration of problems, a real problem. In accordance with the results of observations that have been obtained by researchers, that learning mathematics in 4th SDN Percobaan 1 Malang has not applied Realistic Mathematics Education (RME) approach, therefore researchers apply the approach in SDN Percobaan 1 Malang to improve student's achievement.

The purpose of this study is to: (1) describe the learning process using an approach Realistic Mathematics Education (RME) to student's achievement, (2) describe the improvements studied mathematics students After using the Realistic Mathematics Education (RME) of approach, (3) know the approach to Realistic Mathematics Education (RME) the student's achievement 4th grade in mathematics lesson at SDN Percobaan 1 Malang.

To achieve the above objectives, the research approaches used to use a quantitative approach to the types of experiments. The type of experiment that is used is the pre-Experimental Design because there are still variables that come into effect on the formation of the dependent variable. That is the result of learning math (the dependent variable) is not only influenced by the approach of the Realistics Mathematics Education (RME).

The result of the research of . The Influence Realistic Mathematics Education (RME) On 4th Grade Student's Achievement at SDN Percobaan 1 Malang.i.e. There is influence on the approach to realistic mathematics education (RME) on 4th grade student's achievement at SDN Percobaan 1 Malang. The influence is very low. This is evidenced from the results of the analysis of the test sample paired with the t-value Sig. larger 0.05 i.e. $0.000 < 0.05$ 0.05 with degrees of freedom.

Keywords: Realistic Mathematics Education (RME), Student's Achievement

الملخص

الصالحة، نعمة. 2018 التأثير من تربية الرياضيات بالنهج الواقعي (RME) على نتائج التعلم لطلاب الصف IV في درس الرياضيات في المدرسة الابتدائية الحكومية التجربة 1 مالانج. البحث الجامعي. قسم التربية لمعلمي المدرسة الابتدائية. كلية العلوم التربية والتدريس. الجامعة الإسلامية الحكومية مولانا مالك إبراهيم مالانج.

المشرفة: ألفة موهاياني الماحيستر

تربية الرياضيات بالنهج الواقعي (RME)، هو ما يترجم بتربية الرياضيات الواقعية (PMR)، هي النهج لتعلم الرياضيات وضعت منذ عام 1971. يحسب هذا النشاط أن الرياضيات هي نشاط إنساني، أي نشاط لإعادة الاكتشاف من الأفكار والمفاهيم الرياضية من خلال استكشاف المشاكل الحقيقية. وفقا لنتائج الملاحظة المحصورة عليها من الباحثة، أن تعليم الرياضيات في الصف الرابع في المدرسة الابتدائية الحكومية التجربة 1 مالانج لم تنفذ تربية الرياضيات بالنهج الواقعي (RME)، لذلك تطبق الباحثة النهج المذكور في المدرسة الابتدائية الحكومية التجربة 1 مالانج لتحسين نتائج التعلم.

الغرض من هذا البحث هو: (1) لوصف عملية التعلم باستخدام تربية الرياضيات بالنهج الواقعي (RME) لتحسين نتائج التعلم للطلاب، (2) وصف نتائج التعلم الرياضيات للطلاب بعد استخدام تربية الرياضيات بالنهج الواقعي (RME)، (3) معرفة التأثير من تربية الرياضيات بالنهج الواقعي (RME) على نتائج التعلم لطلاب الصف الرابع في درس الرياضيات في المدرسة الابتدائية الحكومية التجربة 1 مالانج.

لتحقيق الأغراض المذكورة، استخدم هذا البحث النهج الكمي مع نوع التجربة. نوع التجرب المستخدم هو تصميم التجريبية القبليّة كما أن هناك المتغيرات الخارجية التي أثرت في تشكيل المتغير التابع. هذا هو نتيجة الدرس للرياضيات (المتغير التابع) لا يتأثر بالنهج الواقعي (RME).

نتائج تأثير الأبحاث نهج واقعي تعليم الرياضيات (RME) مخرجات التعلم لطلبة الصف الرابع في SDN تجربة 1 مالانج، هناك تأثير على نهج واقعي لتعليم الرياضيات (RME) إلى مخرجات التعلم للطلاب من طلبة الصف الرابع في SDN تجربة 1 مالانج. التأثير منخفض جدا. ويتجلى ذلك من تحليل عينات stte-t المقترنة مع قيمة Sig. أكبر 0.05 أي $0.000 > 0.05$ مع درجات الحرية 0.05.

الكلمات المفتاحية: منهج تعليم الرياضيات الواقعي (RME)، مخرجات التعلم

CHAPTER I

INTRODUCTION

A. Background of the Research

Mathematics is a science that is studied in every level of education. This is a form of recognition that mathematics is urgently needed in the development of knowledge and everyday life. The school is one of the institutions that provide opportunities for students to study and gain value.

Objectives mathematics in school learning intended to skilled students use math and students are also able to apply mathematics in everyday life. It is intended to let students understand math concepts more easily and successfully in everyday life. To achieve the learning objectives of mathematics seen from outcomes studying obtained students. Attainment of maximum study outcomes are influenced by several factors.

The main factors that support the success of learning mathematics is the motivation and interest of students against mathematics. In addition to these factors, there are a number of other factors being the cause. Among them is an effective learning media, learning methods that involve students and interactive, and evaluation system.²

A lot of effort has been done by educators to make students motivated and interested in math lessons. A variety of learning methods and approaches have been developed to make students have passion for math lessons.

² Vinilika Yulia Rosita, "Pengaruh Penggunaan Buku Ajar Matematika Nalaria Realistik (MNR) dalam Pembelajaran Terhadap Prestasi Belajar Siswa SD Muhammadiyah 1 Krian-Sidoarjo", Skripsi, Fakultas Ilmu Tarbiyah dan Keguruan UIN Malang, 2015, p.3

However, it has not been able to help students in understanding the math lesson, because the teacher only all this emphasis on logic and rarely associate with real circumstances experienced by students. In addition, the study still fixated on textbooks and less associated with everyday life so that students haven't been able to solve the problem realistically. This situation causes the low yield learning math students. The average results of mathematical subjects UN during the last three years is shown in the following table:

Table 1.1 Value UN Math primary school in Indonesia

No.	Year Lessons	The Average Value Of The UN
1.	2015	56,2
2.	2016	50,2
3.	2017	70,6

(Source: Republika.co.id 2016 and www.antaraneews.com 2017)

Based on table 1.1, the value of mathematical subjects experienced a decline from the year 2015 year 2016 i.e. amounting to 6.0 points and increase from year 2016 to year 2017 i.e. amounting to 20.4. It shows a very high increase. However, this is not sufficient to prove that learning math always works. It is evident that in the previous year has decreased. So it can be inferred that the development of value is going up and down are not significant.

Learning mathematic should use approaches that are able to increase the active and the participation of students so that the expected learning is no

centered on the teacher (teacher center). But making students become active and trained his thinking ability in solving problems mathematic realistically.

Ausubel's theory of learning focuses on how one gained knowledge, it is in line with the approach of the Mathematics Education which Relaisitic approaches relate the material with the real environment. Learning theory Ausubel stated the following as cited Orton (1987:34)³:

“If I had to reduce all of educational psychology to just one principle, I would say this: The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly”.

The quote above, it can be concluded that the knowledge which already owned students will largely determine whether or not a successful learning process. In addition, a teacher is required to check or repair the back, reminding their students knowledge before he started discussing the topic is new, so new knowledge can relate to the knowledge of the old better known as learning meaningful.

Material in lessons of mathematics is not a separate knowledge however is one of unity, so that the knowledge that one can relate to other knowledge, corresponding to 2013 integrative curriculum. To be able to master the mathematical material, a student must master some basic capabilities. After that, students should be able to relate between the new knowledge with the knowledge that already belong.

³ Shadiq, Fajar dan Mustajab, Nur Amini, *Penerapan Teori Belajar dalam Pembelajaran Matematika di SD*, Makalah disajikan dalam forum Musyawarah Guru Mata Pelajaran (MGMP), Pusa T Pengembangan dan Pemberdayaan Pendidik dan Tenaga kependidikan Matematika, Yogyakarta, July 2011

"In the process of learning requires the role of the teacher is done well in carrying out its obligations to improve the quality of learning. Obligation teacher is plan learning, implementing quality process of learning, as well as assessing and evaluating learning outcomes (Undang-Undang Nomor 14 tahun 2005 tentang Guru dan Dosen). If the role of the teacher is not done be better, so the outcomes will not be optimal learning ".⁴

In accordance with the opinion of the above, a teacher should really be able to maximize the learning of mathematics in the classroom. Because of the existence of maximal learning will support the achievement of the learning success. Maximum learning is learning with the use of good teaching strategies as well as paying attention to the teaching approaches suit the circumstances of the conducted students instead of teaching approach that is both monotonous and uninteresting, because this can lead to a lack of motivation and interest of students in understanding the mathematic.

The motivation and interest of students appear in the appropriate approach to the experience student and knowledge who owned before. One of approach to learning mathematics can associate experience students and mathematical concepts of mathematical approach is realistic. Realistic meaning of real, real, related to the environment is real and the experience of the students. Realistic mathematics oriented experience in everyday.

⁴ Kuart Sutopo, *Keefektifan Pendekatan Realistic Mathematic Education Terhadap Aktivitas dan Hasil Belajar Siswa Kelas V Pada Materi Bangun Ruang di SDN 2 Tinggarjaya Jatilawang Banyumas*, Skripsi, Universitas Negeri Semarang, 2012, p. 3.

Realistic Mathematics Education (RME) rendered in realistic mathematics education (PMR), are something approach to learning math that was developed beginning in 1971. This activity assumes that mathematics is a human activity, according to this approach, the mathematic class is not a place to move mathematics from teachers but rather the place students rediscover the ideas and concepts mathematic through the exploration of issues real.⁵

The statement "mathematics is a form of human activity" suggests that mathematic is not as a finished product, but rather as a form of activity or process. According to Freudenthal mathematics should not be given to students as a finished product that is ready to use, but rather a form of activity in the construction of mathematics concepts, with students actively to rediscover a concept mathematics with teacher guidance.⁶

Realistic mathematics education approach is often called PMRI is already applied in schools in indonesia, but the SDN Percobaan 1 Malang yet applying the approach. Based on early observations, researchers observed the learning in the classroom that the teachers are still encouraged by formal teaching mathematics emphasizes the students to memorize symbols and mathematical figures. In addition, teachers also do not provide concrete problems in learning, teachers only mendedrill students on materials calculation. Classroom teacher says that students are still weak in the calculation so as to launch new material i.e. FPB and KPK, the teacher should repeat again the material Division and multiplication.

⁵ Hadi Sutarto, *Pendidikan Matematika Realistik* (Banjarmasin: Penerbit Tulip, 2005), p.56.

⁶ Wijaya Ariyadi, *Pendidikan Realistik Matematika* (Yogyakarta: Graha Ilmu, 2012), p.20.

Good learning is learning that use the media, because the media function that is easier to understand the material. Therefore, learning math should use educational media so that more students will understand mathematical concepts and stimulating students. However, at the time of observation in the classroom, the researchers did not see any media used in learning mathematics. In accordance with the observation of the results that have been obtained researchers, researchers concluded that learning mathematics in 4th grades SDN Percobaan 1 Malang yet Realistic approach to applying the Mathematics Education (RME), because the teacher just focus so that students can counting and solving mathematics without understanding the origins of the concept and the formula or way used for resolve these problems.

Problems found at the time of observation make the researchers wish to overcome by applying an approach Realistic Mathematics Education (RME), because this approach was used to increase understanding of math lessons are contextually contextually understanding, with students not only consider numeric and mathematical symbols that something abstract, but it can be better understood with the true meaning associated with the surrounding environment. One of the advantages of RME through RME students can build their own knowledge, knowledge that is constructed by the students will continue to be ingrained in students as well as providing a clear understanding to the students of the correlation math concepts with daily life.

This approach is an approach that combines the two approaches namely constructivism and contextual approach, both of which are able to

maximize the learning of mathematics because it gives the opportunity to students to form (construct their own knowledge about the idea) and math concepts through problem solving real world (contextual). With the merger of these two approaches are capable of expression varying his thinking way in solving.⁷

Learning mathematics just memorizing facts, concepts and formulas and teachers do not give the opportunity to students to construction own understanding so that students become passive and students who do not participate in the learning process. It makes most students understand math question only ran on the concept that exists without developing and hooking on to the real issues and real, when the students encountered a problem, their difficulties in completing those problems. It causes the low learning outcomes in learning mathematics.

This research proposal will be focused on solving the problem on mathematics lesson IV grade at SDN Percobaan 1 Malang. The determination is based on elementary school most of the students SDN Percobaan 1 Malang are less interested in mathematics since the mathematical lesson is considered a scary lesson. It is shown with the attitudes and values of Deuteronomy as well as daily value which is less than half of Deuteronomy value ketuntasan minimum criteria (KKM). The following data values repeat daily grade IV in the SDN Percobaan 1 Malang:

⁷ Yusuf Hartono, *Pendidikan Matematika Realistik*. Dikti, Bahan Ajar PJJ S1 PGSD (pengembangan Pembelajaran Matematika SD), p.5

Table 1.2 Data Student's Achievement of 4th

Clas s	KK M	The Numbe r Of Student s	The Number Of Students Comprehensivel y	The Numbe r Of Student s Hadn't	Percentag e complete	Percentag e Hadn't
IV A	75	40	25	15	63%	38%
IV B	75	40	28	12	70%	30%

Based on table 1.2 there are still students who hadn't as much as 27 with a total percentage of 68%. Of these problems, this research was conducted to improve the results of learning math students in Experiment 1 the hapless SDN. Due to the success of learning mathematics is shown with a value greater than the value of the minimum thorough criterion (KKM) and all students are expected to thoroughly.

Determination of 4th grade is based on separation of mathematics lessons on everything from class IV. The existence of the policy then the students should be provided, implanted the concept and understanding in solving mathematics problems. The elementary school is one of the most precise formal institutions to provide or implanted the sense-understanding basic and attitudes necessary for the formation of good citizens. The implanted of the mathematics concepts, the implanted of the habit of thinking creatively, code of conduct needs to be started correctly since the early since elementary school.

Based on the above issue, and previous research, as well as the observations of the author towards the learning approach. . Then the writers

will do more research as to whether learning approach to learning grade IV results in SDN Percobaan 1 Malang. To find out whether or not the influence is and. Then the author wanted to examine the problem and take the title ” **The Influence Of Realistic Mathematic Education (RME) On 4th Grade Students’s Achievement at SDN Percobaan 1 Malang**”.

B. Problem of the Research

Based on the background of the problem above, then the outline of the problem in this research is:

1. How is the application of the approach to Realistic Mathematics Education (RME) in math lesson 4th grade in the SDN Percobaan 1 Malang?
2. How are student’s achievement on 4th in the SDN Percobaan 1 Malang?
3. How to influence of Realistic Mathematics Education (RME) on 4th grade student’s achievement in the SDN Percobaan 1 Malang?

C. Objective of the Research

Based on the above problem formulation, this research aims to:

1. Describes the application of the approach to Realistic Mathematics Education (RME) in math lesson 4th grade in the SDN Percobaan 1 Malang.
2. Describes the student’s achievement on 4th in the SDN Percobaan 1 Malang.

3. Know the influence of Realistic Mathematics Education (RME) on 4th grade student's achievement in the SDN Percobaan 1 Malang.

D. Significances of the Research

The outcomes of this research are expected to support the learning of mathematics and able to improve the studying outcomes of students. As for in detail the usefulness and benefits of this research are to:

1. For institutions, for consideration and additional information in determining the approach as well as the use of methods of learning. Specially for the lessons of mathematics.
2. For teachers, as input for teachers, to pay more attention to and choosing the right method of approach and appropriate material is taught so that the learning objectives can be achieved to the maximum.
3. For authors, so that the outcomes of this research can be used as input that will be used after becoming educators.
4. For students, to make the students more interested in mathematics and was able to increase understanding in the subject of mathematics.

E. Hypothesis of the Research

The hypothesis in this research was divided into two categories namely the zero hypothesis (H_0) and an alternative hypothesis (H_a). Based on the Division:

1. The Null Hypothesis (H_0): No influence on Realistic Mathematics Education (RME) on student's achievement.
2. The Alternative Hypothesis (H_a): there is influence on Realistic Mathematics Education (RME) on student's achievement.

F. Scope of the Research

This research was restricted in SDN Percobaan 1 Malang, with the object of research in special is IV grade in the schools. The scope of this research is described in the following table:

1.3 Variables Research Table

No	Variable	Sub	Indicator
1.	The Application Of <i>Realistic Mathematic Education</i> (RME) (X)	Contextual Learning	a. Learning in context, to associate the material with real world problems b. based on the contextual problem resolution c. Ability to collaborate
		Learning Konstruktivisme	a. Learning with knowledge building activities b. Learning with social activity with the joint activities c. The ability share and critiqued by peers
2.	The Learning Result (Y)	Cognitive	a. Knowing the material learned b. Remember and understand the material to be studied c. Applying in different settlement problem/task

G. Previous Research

This research was conducted with some reasons and differences as follows:

1. The achievement of the objective that will keep students thinking that mathematics is hard and makes it easy for students to understand mathematic lessons.
2. Improve the outcomes studied mathematics through approaches that associate with the experience of students.

Originality of research is demonstrated with some previous research has ever been done with almost the same background that are summarized in the following table:

1.4 Previous Research Table

No	The name of the researcher, the title, Publisher, and publised	Equation	Difference	Previous Research
1.	Gaida Awaliyah, <i>problem-solving Ability Against influence of the results of learning math Grade V SD se-cluster KI Hajar Dewantara Subdistrict Bordering the East of the city of Tegal, Semarang State University, Thesis, 2015</i>	<ol style="list-style-type: none"> 1. The dependent Variable i.e. research study results of students of class V 2. The place of research in the sphere of primary school 3. The sample of the study i.e. upper-class students. 	<ol style="list-style-type: none"> 1. The dependent Variable research student learning outcomes i.e. kela IV 2. The type of research uses quasi experiment 3. Research 	The application of Realistic Mathematic ducation to the maximum to increase the results of learning math class IV SDN Experiment 1 Malang

2.	<p>Kuat Sutopo, <i>the effectiveness of an approach Realistic Mathematic Education Towards the learning activity and the results of the Grade V On wake up space in SDN 2 Tinggarjaya Jatilawang</i>, Banyumas thesis, Semarang State University, 2012</p>	<ol style="list-style-type: none"> 1. Independent variable research i.e. Realistic Mathematic Education and the dependent Variable i.e. Student Learning Outcomes 2. Types of research i.e. experiments 	<ol style="list-style-type: none"> 1. Focus on one dependent variable i.e. Student Learning Outcomes 2. Object of research i.e. class IV ELEMENTARY types of experiments using Pre-experiments 	<p>The results of learning who wants to canvassed was the result of a math lesson on learning, not just on one material but all the material taught in math class IV Elementary School</p>
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3.	<p>Vinilika Yulia Rosita, <i>the influence of the use of Math Textbook Nalaria Realistic (MNR) in Learning achievements of Students Against Muhammadiyah 1 Krian areas-Sidoarjo</i>, thesis, Maulana Malik Ibrahim UIN Malang, 2015</p>	<ol style="list-style-type: none"> 1. The use of mathematical relaistik in the context of learning mathematics in Elementary School 2. The dependent Variable i.e. Student Learning Outcome 3. Types of research i.e. experiments 	<ol style="list-style-type: none"> 1. The application of Mathematic Education Realistic approach towards learning outcomes matematis 2. Sample pelitian only class IV parallel 3. Design of experiments One Group Pretest Posttest 	<p>Know how the results of learning mathematics through the application of Realistic Mathematic Education</p>
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4.	<p>Nuraisah, <i>Realistic Math Learning Approach to improve the Learning Outcomes of students about Fractions in grade V SDN Mandalajati Bandung Subdistrict Climbs</i>, thesis, University of education Indonesia (UPI), 2013</p>	<ol style="list-style-type: none"> 1. Research Variables i.e. RME and student learning outcome 2. The place of research within the scope of the school 3. Application of the RME in learning mathematics 	<ol style="list-style-type: none"> 1. A quantitative Research 2. The place of research in the sphere of Elementary School students sample with kela IV 3. Application of the RME at FPB material and KPK 	<p>Measuring the magnitude of the influence of the application of Realistic Mathematic Education towards the learning outcomes of students in class IV SDN Percobaan 1 Malang</p>
5.	<p>Muhammad Rizal Wahid Muharram, <i>application of Mathematical Learning Realistic Approach Towards Creative thinking ability in Math Story Problem Projected</i>, thesis, University of education Indonesia (UPI), 2014</p>	<ol style="list-style-type: none"> 1. The dependent Variable i.e. complete math problems by means of realistic 2. Types of research i.e. experiments 	<ol style="list-style-type: none"> 1. The dependent Variable i.e. the results of the study 2. The type of research using Pre-experiments 	<p>Measuring student learning outcomes through mathematical understanding of realistic with multiple choice question (a question of story)</p>

6.	Bint Rosyida, <i>Jarimatika Methods and Influence Motivation towards Learning Outcomes Students Learn Mental Arithmetic On TAKA (Add)</i> , thesis, UIN Maliki Malang, 2015	<ol style="list-style-type: none"> 1. The dependent Variable i.e. the results of learning mathematic 2. Types of research i.e. experiments 3. The form of the test using the reserved 	<ol style="list-style-type: none"> 1. The dependent Variable i.e. learning outcomes grade IV 2. The type of research using Pre-Experiments 3. The form of the test results of learning i.e. material FBP and KPK 	The results of a study that measured the cognitive ability is.
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From the table above research originality can be inferred that this research was conducted in accordance with the existing problems in the place of research in SDN Percobaan 1 Malang, by measuring the outcomes of studying mathematics students are cognitively.

H. Operational Definition of Key Term

The variable in this study need to be described in more detail in order not to occur is wrong perception against the title of the research, then it needs to be defined things as follows:

1. Approach Realistic Mathematic Education (RME) is the approach that is used specifically for mathematics lessons. This approach is similar to the approach used in the contextual learning on strategies learning in General. Realistic approach of Mathematic Education (RME) or Realistic Mathematics Education Approach (PMRI) is an approach to learning mathematics associate real problems with mathematical concepts. So in this issue and there are mathematical relationships/associate which can facilitate students in completing the associated problems in everyday life.
2. Student studying outcome is an outcome that is obtained after performing the instruction. The outcomets are usually expressed with a value or behavior. With those results can be known the extent to which the student's understanding of the lessons already learned.
3. Lessons of mathematics is one of the lessons the less sought after by students because it is considered a difficult-to-understand lessons. So many of the students who got a less satisfactory value.

I. Composition of Research Finding

To know the complete picture of this proposal, the author pointed out systematic writing as follows:

1. CHAPTER I: discussed on consists of: background of the research, problem of the research, objective of the research, significances of the research, hypothesis of the research, scope of the research, previous

research, operational definition of key term, and composition of research finding.

2. CHAPTER II: discussed about theoretical of which include: a) realistic mathematic education (RME), b) Student Learning Result Mathematics, c) and d) applicability of the RME in SD/MI.
3. CHAPTER III: discussed about the methods of research of which include: a) research setting, b) Approach and Research Design, c) research variable, d) Population and Sample, e) data and data sources, f) research instrument, g) data collection, h) test of reliability and validity, i) data analysis, and j) research procedure.
4. CHAPTER IV: discusses about the results of research and discussion.
5. CHAPTER V: the closing containing the conclusions of the outcomes research that would answer the question the problem of research objectives.

CHAPTER II

REVIEW OF RELATED LITERATURE

A. Realistic Mathematic Education Approach

1. The Understanding of RME Approach

In 1971 the mathematical scientist of the Freudenthal Institute, Utrecht University in the Netherlands, developed an approach to learning mathematics is i.e. Realistic Mathematic Education (RME), which is translated into Indonesian *Pendekatan Pendidikan Matematika Realistik*.⁸ This approach was developed in the Netherlands since the year 1970 by Freudenthal who considered mathematics as a human activity.⁹

Realistic Mathematic Education (RME) approach or *Pendekatan Pendekatan Matematika Realistik (PMRI)* has been used in Indonesia since 2001 in the process of learning mathematics. The first four users of this approach are: University of Education Indonesia – Bandung, State University of Yogyakarta, Universitas Sanata Dharma – Yogyakarta and State University of Surabaya.¹⁰

The learning approach that most affect the learning of mathematics in the process is to use the approach of RME, so a lot of mathematical experts who also implemented.

⁸ Yusuf Hartono, *Pendidikan Matematika Realistik*. Dikti, Bahan Ajar PJJ S1 PGSD (pengembangan Pembelajaran Matematika SD), p.3.

⁹ Wijaya Ariyadi, *Pendidikan Realistik Matematika* (Yogyakarta: Graha Ilmu, 2012), p.3.

¹⁰ Ibid, p. 3.

such an approach.¹¹

Mathematics is a form of human activity. This means that mathematics is not a finished product, but rather as a human activity.¹² A human activity is capable of shaping activities together to construct a mathematics concept. The activity of constructing knowledge is known as "guided reinvention". Guided reinvention is an activity performed by students in developing mathematical concepts with the guidance of a teacher. With those activities, the process of learning mathematics is not a closed system, but a process activity of building concepts called mathematization.¹³

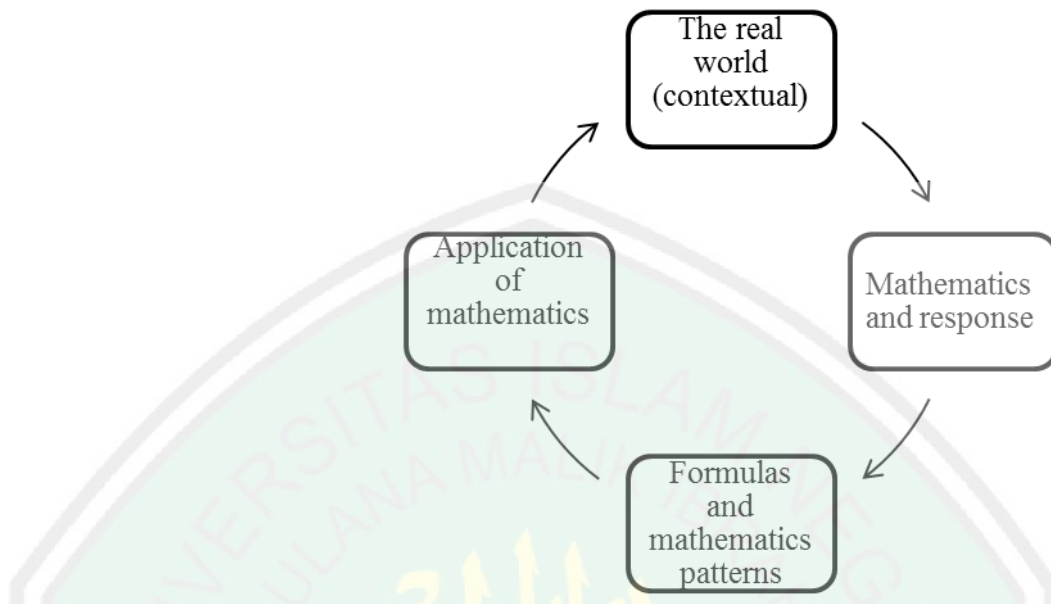
Mathematization is an activity which associates mathematics with the real world (contextual). These activities are described in the following figure.¹⁴ (see Figure 2.1 Conceptual Mathematization).

¹¹Suwangsih, Erma, *Model Pembelajaran Matematika*,
(http://file.upi.edu/Direktori/DUALMODES/MODEL_PEMBELAJARAN_MATEMATIKA/BB_M4_Dra_Erna_Suwangsih%2C_M.Pd..pdf, diakses 19 Mei 2017 jam 13.49 WIB)

¹²Wijaya Ariyadi, *Pendidikan Realistik Matematika* (Yogyakarta: Graha Ilmu, 2012), p.20

¹³Ibid, p.20.

¹⁴Yusuf Hartono, *Pendidikan Matematika Realistik*. Dikti, Bahan Ajar PJJ S1 PGSD (pengembangan Pembelajaran Matematika SD), p. 4



Picture 2.1 Conceptual Mathematization

Mathematization activity as an activity in discovering knowledge on a regular basis, with attention to relationships and structure. Such activities also help solve math problems by associating them with the real world (contextual). In General, solving mathematics problems can be done in two ways: *first*, look for formulas and mathematics patterns, where determining the formulas and the pattern is done after understanding the math problems. *Second*, mathematics modeling, where modeling will provide a great opportunity to be able to solve the problems well (math in the application).¹⁵

Mathematics activities are divided into two types: horizontal mathematics and vertical mathematics. Both of these

¹⁵ Wijaya Ariyadi, *Pendidikan Realistik Matematika* (Yogyakarta: Graha Ilmu, 2012), p. 42.

processes are described by the Gravenmeijer.¹⁶ (see Figure 2.2
Mathematization Horizontal and vertical)

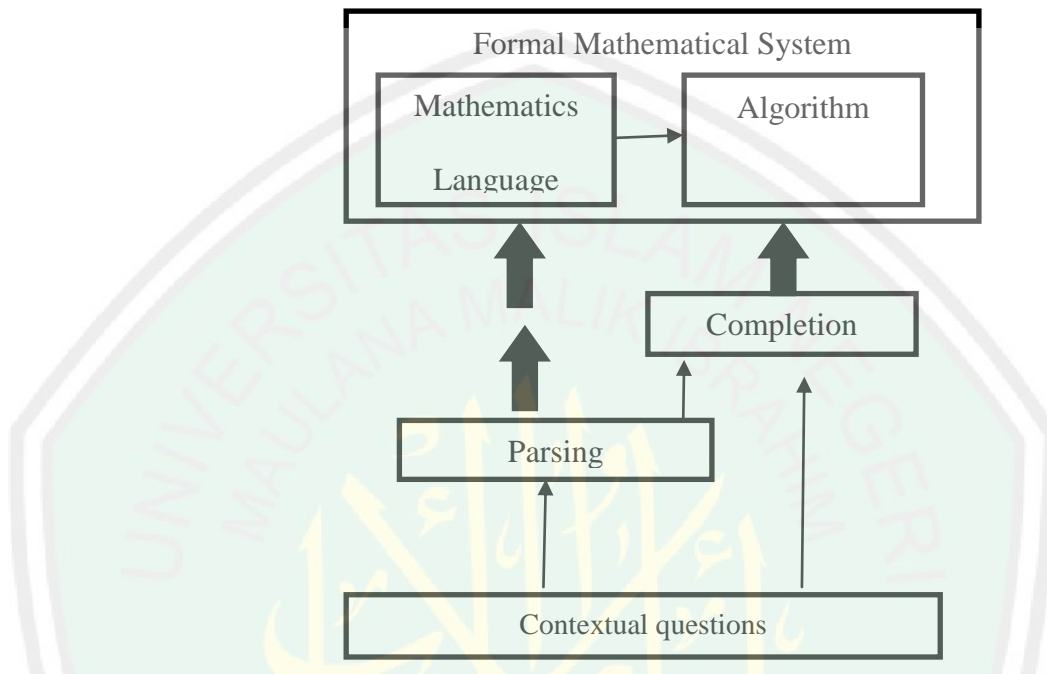


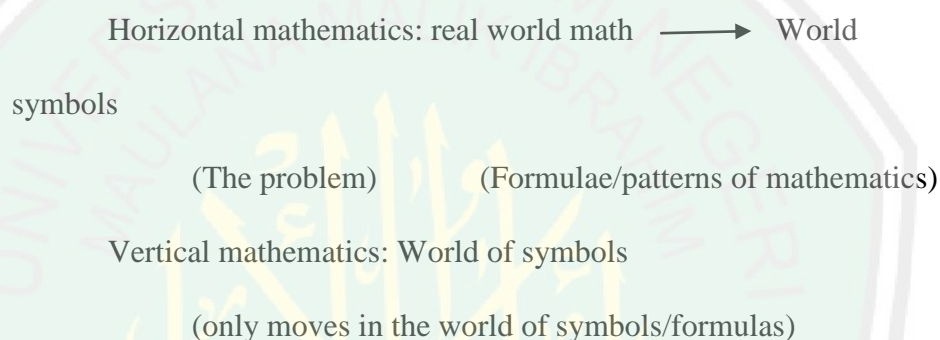
Figure 2.2 Horizontal and Vertical Mathematization

The horizontal mathematics is the process of mathematics problems such as contextual of the real world. In the horizontal mathematics activities, students to try to solve problems of the real world in a way and a symbol of their own. The vertical mathematics is the process of formulation of the mathematics concepts and mathematics patterns without hooking up with the real world. In vertical mathematics students try to solve problems of mathematics directly without hooking up with the real world.¹⁷

¹⁶ Yusuf Hartono, *Pendidikan Matematika Realistik*. Dikti, Bahan Ajar PJJ S1 PGSD (pengembangan Pembelajaran Matematika SD), p.5.

¹⁷ Ibid. p. 4

Horizontal mathematics means moving from the real world into the world of symbols, then the vertical mathematization means moving around in the world of the symbol itself. In other words, we produce concepts, principles, or mathematical models of contextual problems including daily mathematization horizontal, while generating concepts, principles, or mathematical model of Mathematics including mathematization vertical.¹⁸



2. Characteristics of RME

Realistic mathematics education have five characteristics:¹⁹

1) Use of the context of the problem

Learning with realistic mathematics approach must use the context of the problem as the main ingredient in the learning process. The context is not merely a problem of the real world but could be in the form of games, the use of props, or other situations as long as it is meaningful and can be reflected in the student's mind. With the use of the context of the problems, students actively undertake activities

¹⁸ Yusuf Hartono, *Pendidikan Matematika Realistik*. Dikti, Bahan Ajar PJJ S1 PGSD (pengembangan Pembelajaran Matematika SD).p.4.

¹⁹ Wijaya, Ariyadi, op.cit. p.20.

which provide opportunities for students to solve problems in their own ways.

2) Use of mathematics modeling

The use of the model serves as a relation between the concepts of mathematics with the real world (the context). The use of the model will facilitate students in understanding problems in concrete mathematics, so that students no longer consider that mathematics is abstract.

3) Utilization of the students' construction

Realistic mathematics approach is an approach which puts mathematics as a human activity and not a product that is already so.²⁰ Students as subjects in the process of learning so that students have the freedom to develop problem-solving strategies. These strategies can be used to develop mathematics concepts.

4) Interactivity

Interactivity is an activity together and communicate with each other. The learning process will be shorter and meaningful when students mutually communicate the outcomes of their work and ideas. The utilization of interaction in learning mathematics is useful to develop students' affective and cognitive ability on an ongoing basis.

²⁰ Wijaya Ariyadi, *Pendidikan Realistik Matematika* (Yogyakarta: Graha Ilmu, 2012), p.20.

This ability is gained new knowledge by forming the knowledge itself.²¹

5) Connectedness

Learning mathematics is expected to be able to introduce and build more than one mathematics concepts simultaneously. There is connectedness in this approach, by presenting some of the images that are associated with each other, from each of these images can give you an idea of which vary, depending on how the image looked at times.²²

One of the characteristics of the realistic mathematics education approach is the utilization of the outcomes of the students' construction. From the utilization, the students are required to think creatively in solving math problems. After studying mathematics through realistic mathematics education, students can think creatively because creativity is one of the factors that support the learning activities that are fun and effective.

3. Learning Model of RME

The learning model is a series of a systematically composed concept used in the learning process to achieve the desired goals.²³

²¹ Yusuf Hartono, *Pendidikan Matematika Realistik*. Dikti, Bahan Ajar PJJ S1 PGSD (pengembangan Pembelajaran Matematika SD), p.5.

²² Wijaya, Ariyadi, op.cit., p.82.

²³ Ridwan Abdullah Sani, *Inovasi Pembelajaran*, (Jakarta: Bumi Aksara, 2013), p.89

Realistic mathematics education has two kinds of learning model, namely: "the Model of" and "the Model for".²⁴

1) Model Of

This model develops a tool (mathematics tools). First students will develop mathematics tools which have a connection with problems in context. Mathematics tools may be either the strategy or solution of problems.

2) Model For

This model develops mathematics understanding. Mathematics understanding is formed when a strategy is both general and not associated in the context of a realistic problem situations.

In accordance with the theory of Bruner, learning mathematics in elementary school, especially in lower grades, really needs concrete objects that can be observed and held directly by the students in learning activities. Therefore, the role of props in mathematics learning must not be forgotten.

Tools can bridge the abstract concepts of mathematics with the real world. In addition, props can also help students find a troubleshooting strategy. From the use of props, students can build their own knowledge, understanding, and problem-solving strategies.²⁵

This research will use the model of because according to researchers in accordance with the research objectives i.e. students are

²⁴ Wijaya, Ariyadi, op.cit., p. 21.

²⁵ Wijaya, Ariyadi, op.cit., p. 21

expected to develop problem-solving strategies so that when encountered new problems, students no longer feel difficulty in get it done. Doing so will affect the results of the study of mathematics is expected to increase from the results of the previous study.

4. Learning Steps of RME

Steps of learning realistic mathematics in general is as follows:²⁶

1) Preparation

At this preparation stage, a teacher must prepare an issue and really understands the problem and has a wide range of strategies for the students to do.

2) Opening

At this stage, a teacher introduces strategies that will be used to resolve the issue contextually. Next the students are asked to solve the problem in their own way.

3) The learning process

At this stage, students are trying various strategies to resolve the problem in accordance with his experience, which can be done individually or in groups. Then each student or group presents the work in front of other students or groups and gives a response to other students' or groups' work. The teacher observes the course of class

²⁶ Wijaya, Ariyadi, op.cit., p. 21

discussion and gives responses while directing students to get the best strategies and find more common rules or principles.

4) Closing

At the end of learning students are invited to draw the conclusion from the study, then students are asked to work on the question of the evaluation in the form of formal mathematics.

B. Student's Achievement

1. Understanding Of Student's Achievement

People assume that learning is an activity of just memorizing facts already embodied in the form of the subject matter. So someone will feel proud when he or his children have been able to mention and memorize the facts again. Actually learning has a deeper meaning than just that, as described by some psychologists, i.e. Skinner, Caplin and Hintzman.

Skinner (1998) in his book *Educational Psychology The Teaching Learning Process* argues that learning is a process of adaptation or adjustment of behavior taking place progressively. Skinner believes that the adaptation process will bring optimal results when it is given reinforcement.²⁷

Caplin in his *Dictionary of Psychology* restricts the meaning of the study with two formula, namely: first, the acquisition of any highly permanent change in behavior as a result of practice and experience.

²⁷ Syah, Muhibbin, *Psikologi Pendidikan* (Bandung: PT Remaja Rosdakarya, 2009), p. 88.

Learning is the acquisition of relative behavior changes settled as a result of practices and experiences. Secondly, the Process of acquiring responses as outcomes of the special practice. This means that learning is the process of obtaining responses as a result of the existence of special training.²⁸

Hintzman in his book *The Psychology of Learning and Memory* argues that Learning is a change in organism due to experience which can affect the organism's behavior. This means that learning is a change that occurs within the organism (humans and animals) caused by the experience which can affect the behavior of the organism. In Hintzman's view, learning is a change posed by experience.²⁹

According to Islamic view, learning is an activity that is required by every Muslim. It is emphasized against cognitive function (sense) and sensory function as important tools for learning. In the Quran there are key words about learning i.e. *ya'qilun, yatafakkarun, yubsirun, yasmaun*, it is a testament to how important the use of human intention in learning and science.

Quotations of the Holy Quran and Hadith oblige Muslims to learn in order to acquire knowledge.³⁰

God says in the Qur'an, Isra 36

وَلَا تَقْفُ مَا لَيْسَ لَكَ بِهِ عِلْمٌ ۚ إِنَّ السَّمْعَ وَالْبَصَرَ وَالْفُؤَادَ كُلُّ أُولَٰئِكَ كَانَ عَنْهُ

مَسْنُونًا

²⁸ Syah, Muhibbin, *Psikologi Pendidikan* (Bandung: PT Remaja Rosdakarya, 2009), p. 88.

²⁹ Ibid, p. 88.

³⁰ Ibid. p. 99.

Meaning: and ye shall destroy yourself on what you know not

In the Hadith narrated by Ibn Asim and Tabrani, Prophet Muhammad, said: *o all humans, learn! Because science can only be acquired through learning* (Qardhawi, 1998)³¹

From some of the opinions above, researchers concluded that learning is an activity organized intentionally which is done to know and understand something that will give responses and changes in behavior. Learning can be done through previous experience, not only from books that contain the material or knowledge, but also can be obtained from a person or experience.

According to Gleen Doman in The book *The Learning Revolution* bouquet Gordon Dryden and Dr. Jeanette Vos, that learning is the greatest game and fun in life. Gleen Doman assumes that most children never really understand lessons, and sure that learning is fun and is the only game that deserves to be played.³²

Next Gordon Jeanette designing game learning with the principle as follows:

1. Introduce creative thinking and problem solving
2. The game is done from various establishments
3. Continue with quiz to find the answer
4. using existing tools around the neighborhood
5. Use the problem to understand the changes in the situation

³¹ Syah, Muhibbin, *Psikologi Pendidikan* (Bandung: PT Remaja Rosdakarya, 2009), p. 99.

³² Gordon, Dryden, dan Jeanette Vos, *Revolusi Cara Belajar The Learning Revolution*, terj. Ahmad Baiquni (Bandung: Mizan Media Utama, 2001), p. 390

The principle used is applied when learning is like as a play, in this case study is positioned in a State that is fun. A State of fun will give free mood without any burden to develop students ' potential to the maximum. Gordon Dryden and Dr. Jeanette Vos write six true learning tips quick and pleasant way, in between is 1) create the correct conditions, 2) presentation, 3) think, 4) Express, practice, and 5) 6) review, evaluate and celebrate.³³

1. Create the right conditions

This can be done in several ways, namely: setting up a fun learning facilities, such as the measang scent and colourful in the classroom, decorate the walls with posters. Sehingga students can absorb the materials lesson consciously.

2. The correct Presentation

Presentation should be oriented at students and associated with their objectives and existing knowledge.

3. Think

Learn how to think is the most important part of any educational program. So teachers should create the earliest known for knowing how to think the students appropriately.

4. Express

³³ Gordon, Dryden dan Jeanette Vos, *Revolusi Cara Belajar The Learning Revolution*, terj. Ahmad Baiquni (Bandung: Mizan Media Utama, 2001), p. 300

Expression aims to enable memory and reinforce learning. many ways that can be done to express such as: students create skits, talks, debates and games.

5. Practice

The key of the parktik is to use the process of learning it and applying it in certain situations, especially real-life daam. Such as: students learn the piano by playing a piano, students learn a bicycle by riding a bicycle, and students learn to speak by doing talk in public.

6. Review, evaluation and celebrate

How to review is reading at a glance your mind map or catatatan that have been signaled. This can be done by way of reading before going to bed, read the next day, reading a week later and a month later. And always remember to celebrate every success.

Learning is done with a specific purpose which is able to exert influence to a person. Learning objectives can be seen from the responses and the changes after performing the study. The responses and changes are the form of learning. The form of learning can be said as outcomes of learning. Learning can be said to be successful if the desired goals are achieved, as described by some scientists.

The outcomes of the study could be explained by understanding two words that shape it, namely "outcomes" and "study". Understanding

the result (product) refers to an acquisition due to doing an activity or process that resulted in the above-mentioned input functionally.³⁴

Psychologically, learning is a process of change i.e. change in behavior as a result of interaction with the environment in fulfilling the needs of his life. The behavior change will be evident in all aspects of behavior.³⁵

According to the Hamalik, the results of the study are as the occurrence of a change in a person's behavior that can be observed and measured from shape of knowledge, attitudes and skills. Such changes can be defined as the occurrence of increased development which is better than before and something unknown becomes known.³⁶

The student's achievement, according to some scientists, are the changes that occur in cognitive, affective and psychomotor aspects arising from the learning process. The researcher describes the study outcomes in this research as the results achieved in the process of learning that has already passed. The results of the study indicate a good grade above the specified standard. The study outcomes to be achieved in this case are the results of cognitive learning.

2. Factors Influence Of Student's Achievement

³⁴ Purwanto, *Evaluasi Hasil Belajar*, (Yogyakarta: Pustaka Pelajar, 2011), p. 44..

³⁵ Slameto, *Belajar dan Faktor-faktor yang Mempengaruhinya*, (Jakarta: Rineka Cipta, 2010), p.2

³⁶ Oemar Hamalik, *Proses Belajar Mengajar*, (Jakarta: Bumi Aksara, 2007), p. 30.

Factors that affect students' learning can be distinguished into three kinds, namely: internal factors, external factors and approaches to learning.³⁷

a. Internal factors

Internal factors are factors that exist in the individual that is being studied. The internal factors include:

1) Physical Factors

The definition of physical factors, namely factors of health and disability.

2) Psychological factors

There are seven factors that pertained in the psychological factors that affect learning, namely: intelligence, attention, interest, talent, maturity and readiness.

3) Fatigue Factor

Fatigue to someone can be distinguished into two, namely the physical and spiritual exhaustion. Physical fatigue is visible with a weak condition of the while spiritual fatigue can be seen in the presence of lethargy and boredom so that interest and the urge to make something disappear.³⁸

b. External factors

Factors that originate outside of the individual that is being studied.

External factors, include:

³⁷ Syah, Muhibbin, *Psikologi Pendidikan* (Bandung: PT Remaja Rosdakarya, 2009), p. 129

³⁸ Slameto, *Belajar dan Faktor-faktor yang Mempengaruhinya*, (Jakarta: Rineka Cipta, 2010), p. 54.

1) Family Factors

Students who study will receive the influence of the family in the form of how parents educate, relationships between family members, household atmosphere, family economic circumstances, understanding parents, and cultural background.³⁹

2) School Factors

Factors impacting school learning includes teaching method, curriculum, teacher's relationship with students, student relations with other students, school discipline, facilities, class schedule, above-standard lessons, learning methods and homework.⁴⁰

3) Community Factors

The community has significant effects on student learning. Its existence is due to the influence of the students in the community. These factors include students in society, mass media, friends, and people's way of life in the society.⁴¹

c. Approach to Learning Factor

³⁹ Slameto, *Belajar dan Faktor-faktor yang Mempengaruhinya*, (Jakarta: Rineka Cipta, 2010), p. 54.

⁴⁰ *Ibid.* p. 56.

⁴¹ *Ibid.* p. 57.

Learning approach factor means the type of effort that includes individual learning strategies and methods used to perform individual activities to learn learning materials.⁴²

Learning approach is also factor affecting the extent of the success of the students' learning process. Because each individual has different learning types, a good teacher must be able to recognize the individual character and applies the learning approach that suits the character of students.

Some of the above factors greatly influence the achievement of the learning outcomes of students, those factors must be understood by teachers in order to be help students achieve better study outcomes. Factors that have been described above will be associated with this study. The researcher focuses more on factors of learning approach. The researcher tries to apply a new learning approach, which has not been used before.

3. Indicators Of Student's Achievement

The outcomes of the study can be expressed in three levels of complexity, namely cognitive, affective and sensory domains. To obtain the size of the data and results of student learning as expected, the outline of the indicators are observed. The learning indicator can

⁴² Syah, Muhibbin, *Psikologi Pendidikan* (Bandung: PT Remaja Rosdakarya, 2009), p. 129.

determine a specific achievement associated with the kind of achievement to be revealed and measured.

According to Bloom, the learning outcomes include cognitive, affective and psychomotor abilities.⁴³ The learning outcome indicators in those three domains can be outlined as follows:

1) Cognitive Domains include:

- a) Knowledge, including identifying, defining and mentioning.
- b) Comprehension, including:
Outlining with your own words, writing back, summarizing and differentiating.
- c) Application, including:
Using, operating, creating/making changes, completing, taking into account, preparing, deciding.
- d) Analysis, including:
Distinguishing, selecting, separating, dividing, identifying, analyzing, comparing, detailing.
- e) Creating, building (Synthesizing), including:
Making a pattern, planning, composing, editing, organizing, deducing, compiling, building.
- f) Evaluation, including:
Judging, comparing, justifying, criticizing, explaining, interpreting, summarizing, evaluating.

⁴³ Thobroni, Muhammad dan mustofa, arif, *Belajar dan Pembelajaran*, (Jogjakarta: Ar-ruzz Media), p. 23

2) Affective Domains include:

a) Receiving, including:

Following, choosing, trusting, deciding, asking, holding, giving, finding, following.

b) Responding, including:

Practicing, giving, reporting, welcoming, telling, doing, helping.

c) Assessment (Valuing), including:

Following, suggesting, reading, learning, working, receiving, doing, arguing.

d) Organization, including:

Retaining, modifying, combining, uniting, listening, influencing, following, modifying, connecting, uniting.

e) Determining the value of traits (Characterization by a value or value complex), including:

Presenting, using, testing, interviewing, asserting, suggesting, solving, influencing, showing.

3) Psychomotor domain includes:

a) Fundamental Movement, including:

Bringing, listening, reacting, moving, understanding, running, climbing, jumping, holding, standing, running.

b) Generic Movement, including:

Training, building, disassembling, modifying, jumping, tidying up, playing, following, using, moving.

c) Ordinate Movement, including:

Playing, connecting, relating, accepting, outlining, considering, wrapping, swimming, moving, improving, writing.

d) Creative Movement, including:

Creating, finding, building, using, playing, showing, performing, creating, composing.

Learning outcome indicators described above can be achieved by providing enrichment and tasks. However, the theory on this research refers to the results of a study of the cognitive domain where students are expected to recall, understand, and organize ideas or things that have already been learned. The students has to express those ideas using their own words.

4. Learning Difficulties

The difficulty is a condition characterized by the presence of certain barriers in achieving the objectives, so it takes more efforts to overcome. Learning difficulties can be defined as a condition in a learning process that mark the existence of certain obstacles to achieving the learning outcomes.

A person's learning difficulties are evident from the decrease in the outcomes of the study. Besides, learning difficulties are also shown with the emergence of students' behavior abnormalities such as yelling in the classroom, harassing their friends, fighting, and frequent absences from

classes There are two factors causing the onset of the learning difficulties, namely:⁴⁴

a) Internal Factors of students

- 1) Physical factors. General physical conditions that impact on the spirit and intensity of students' following classes.
- 2) Psychological factors. Factors including psychological aspects that may affect the quality of the outcomes.

b) External Factors

- 1) Non social factors, such as infrastructure and facilities of the school/study, home location, the weather condition and the time of study.
- 2) Social factors such as teachers, teachers' personalities, of its administrative staff, and classmates.

These factors should be avoided in order to achieve maximum learning results.

C. Learning of the Mathematics

1. Understanding Of Learning

Learning can be described as interactions that are interwoven between teachers and students in classes that discuss a subject matter. Learning is highly related to the study. Learning is an individual activity on the environment so that changes on behaviors occur. Instruction, on the other hand, is the provision of conditions that lead to the process of

⁴⁴ Syah, Muhibbin, *Psikologi Pendidikan* (Bandung: PT Remaja Rosdakarya, 2009), p. 170.

learning for learners. The provision of conditions can be done with the help of teachers.⁴⁵

Based on these conditions, in the preliminary activities in learning, learning objectives and activities should be stated to increase the students' motivation to learn. Other activation can be done at this point is the perception, i.e. checking the students' current level of understanding so that they are ready to receive new information.⁴⁶ Effective learning is very important to do so that participants can absorb the learning materials.

Mathematics is one of the six science subjects, besides physics, biology, psychology, social sciences and linguistics. Based on the nature of mathematics, constructivism view believes that students learning mathematics are exposed to specific problems based on the construction of knowledge acquired while learning and they try to solve them.

Mathematics is also an important subject to be taught in elementary schools because mathematics is useful in daily life of learners and is required as a basis for studying advanced mathematics and other subjects.⁴⁷

Learning mathematics is the work done by the teacher to the students to build an understanding of mathematics. The process of

⁴⁵ Abdullah Sani, Ridwan, *Inovasi Pembelajaran*, (Jakarta: Bumi Aksara, 2013), p. 40.

⁴⁶ Ibid. p. 40.

⁴⁷ Prihandoko, *Pemahaman dan Penyajian Konsep Matematika secara benar dan menarik* (Jakarta: Dediknas ,2006), p. 21

building this understanding is more important than the outcomes because the understanding will be more meaningful to the material being studied.

2. Objectives of the Mathematics Learning

Learning objectives can be achieved when the teacher is able to organize all the components in such a way so that the components can interact with each other harmoniously. One of the components in the learning is the utilization of a wide range of strategies and learning methods dynamically and flexibly in accordance with the material, students and learning contexts. Therefore, teachers are required to be able to choose the learning model as well as the media that match the learning materials.

Mathematics learning objectives are to train and foster a systematic, logical, critical, creative, and consistent ways of thinking, as well as develop persistent and confident attitude in solving the problem.⁴⁸

The general guidelines of the elementary school mathematics mention that the objective of mathematics learning are:⁴⁹

- a. Grow and develop the skill of counting (using numbers) as a tool in everyday life.
- b. Grow the students' abilities which can be developed through mathematics.

⁴⁸ Ibid. p. 21

⁴⁹ Prihandoko, Pemahaman dan Penyajian Konsep Matematika secara benar dan menarik (Jakarta: Dediknas ,2006), hlm. 21

- c. Develop basic knowledge in mathematics as the provision of information in junior high schools.
- d. Form a logical attitude, critical, careful, creative and disciplined.

Besides, the goals of mathematical subjects listed in School-Based Curriculum at elementary school level are to enable the students to:⁵⁰

- a. Understand math concepts, explain the relation between concepts and apply concepts or logarithms are generally flexible, accurate, efficient and appropriate in problem solving.
- b. Use reasoning on pattern and nature, do mathematical manipulations in making generalizations, compiling evidence or explain ideas and mathematical statements.

The Researcher concluded that the goal of learning math is to train students to understand the meaning of symbols and numbers, understand patterns of counting, apply the concepts in problem solving and resolving problems in everyday life.

D. Applying the RME Approach in Elementary Schools

Realistic mathematics learning can be applied in primary schools as one of the efforts to help mathematics teachers in delivering counting operations, so that students can see the direct application of the operations and

⁵⁰ Prihandoko, Pemahaman dan Penyajian Konsep Matematika secara benar dan menarik (Jakarta: Dediknas ,2006), hlm. 21

be more interested in studying this material as well as easily understanding the material presented. Thus the materials which are currently considered difficult by students or teachers hopefully can be resolved.⁵¹

Realistic mathematics learning begins with the contextual problem (the real world), thus allowing them to use previous experiences directly. The core process of the corresponding concept of the real situation is declared as a conceptual mathematization. By the careful formulation and the use of models, students will develop a concept that is more complete. Then, students can apply mathematical concepts to the new field of the real world. Therefore, to bridge mathematics concepts with everyday experience, it is necessary to do the mathematization of everyday experience and the application of mathematics in everyday life.

To provide an overview of the implementation of realistic mathematics, an example of counting operation instruction in elementary school.

Example: Addition Problem (Shopping)⁵²

The teacher introduces the context to students by telling that he will invite some of his neighbors to dinner at his house on his son's birthday. He will cook the Chicken Coconut Curry (you can use a popular cuisine of your region). When shopping, she learns that chicken price is Rp15.000 per kilogram (prices can be adjusted with the local price to be more realistic). For

⁵¹ Rahmawati Yuliyani, *Pembelajaran Matematika Realistik Pada Materi Operasi Aljabar Di Kelas Vii Mts Daarussa'adah Ciganjur Jakarta Selatan*, Jurnal Formatif, Universitas Indraprasta PGRI, No. 6(3): 256-265, 2016, p.257.

⁵² Yusuf Hartono, *Pendidikan Matematika Realistik*. Dikti, Bahan Ajar PJJ S1 PGSD (pengembangan Pembelajaran Matematika SD), p.23.

the dinner he needs three and a half kilograms of chicken. The teacher asks the students to calculate how much money is needed to buy the $3\frac{1}{2}$ kilograms of chicken. Students work in groups of two or three members. A few strategies that may be taken by students are as follows:

1. Students directly multiply 15.000 with 3,5 to obtain Rp52.500.
2. Students first multiply 15.000 by three to get 45.000, and sum it with $\frac{1}{2}$ multiplied by 15.000, 7.500 and obtain the solution i.e. Rp52.500.
3. Students divide the numbers into 5.000, 10000, and 15.000, and then multiply each of them by $3\frac{1}{2}$ and then sum them to get the same solutions, namely Rp52.500.

E. Research Roadmap

Research roadmap in this research is:



Figure 2.3 Research Roadmap

Description:

1. Realistic Mathematic Education (RME) Approach

RME approach is used as an approach that can impact (the independent variable) on the students' study outcomes in learning mathematics.

2. The ability of creative thinking

The learning outcomes of students who are either influenced (the dependent variable) by RME approach, the ability is demonstrated by the students' ability to solve mathematics problems.



CHAPTER III

METHOD OF THE RESEARCH

A. Research Setting

This research will be funded in the SDN Percobaan 1 Malang, SD is located at JL. Magelang No.4 Sumbersari Lowokwaru, Malang. The determination of the place of research based on the consideration of most of the students Probationary SDN 1 Percobaan 1 Malang interested in mathematics since the mathematical lesson is considered the lessons difficult and scary. It is shown with the attitude and the value of the daily repeats less than minimum thorough criterion value.

The determination of the place of this research was also based on the level of the primary school is the first step in instilling the concept of mathematics, in particular basic education primary school is one of the most precise formal institutions to provide or instill sense-understanding and basic attitudes necessary for the formation of good citizens. The cultivation of the mathematical concepts, the cultivation of the habit of thinking creatively, code of conduct needs to be started correctly since the early i.e since elementary school.

B. Approach and Research Design

Approach this research using a quantitative approach to the types of experiments. The type of experiment that is used is the pre-Experimental Design because there are still variables that come into effect on the formation

of the dependent variable. That is the result of learning math (the dependent variable) is not only influenced by the approach of the Realistics the Mathematics Education (independent variable). So the results of the experiment which is the dependent variable that is not solely influenced by the dependent variable. This happens because of the absence of control variables and samples were not selected at random.

The form of pre-Experimental Design there are several kinds of IE One-Shot Case Study, One-Group Pretest-Posttest Design, and Intact-Group Comparison, in this study using a form of One-Group Pretest-Posttest Design.⁵³ On the design of this research there is a pretest and posttest treatment given before after giving the treatment. So the results of treatment can be known to be more accurate, because it can be compared to the situation before the given treatment. Design of One-Group Pretest-Posttest Design as follows:

$$O_1 \text{ X } O_2$$

Figure 3.1 Design Research

With:

O_1 : Pretest values (before approach of the RME)

O_2 : Posttest values (after approach of the RME)

Impact of approach to outcomes study mathematics results RME i.e = ($O_2 - O_1$).

⁵³ Sugiyono, *Metode Penelitian Pendidikan* (Bandung: ALFABETA CV, 2015), p.109

Once researchers determine classroom experiments, then researchers making design research as follows:

Table 3.1 Experimental Design Research

Class IVA			
Class	Pretest	Treatment	Posttest
IVA	O ₁	X	O ₂

Class IVB			
Class	Pretest	Treatment	Posttest
IVB	O ₁	X	O ₂

Each class is given the same treatment, so the comparison before and after can be obtained from $(O_{2\text{ IVA}} + O_{2\text{ IVB}}) - (O_{1\text{ IVA}} + O_{1\text{ IVB}})$.

C. Research Variable

This research uses a single independent variable and one dependent variable. (see fig. 1 the dependent and independent variables relationships).



Figure 3.2 The Dependent and Independent Variable

Relationships

Where,

X: Realistic Mathematic Education (RME) Approach

Y: Students' mathematics study outcomes

1. Independent variable

This research independent variable is Realistic Mathematic Education (X)

2. The Dependent Variable

The research of the dependent variable that is fourth graders' mathematics study outcomes (Y).

D. Population and Sample

The population of the region is general consisting of: objek/subjects that have certain qualities and characteristics set by the researchers to learn and then drawn the conclusion.⁵⁴ While the sample is part of the number and characteristics of which are owned by the population.⁵⁵ According to Suharsimi Arikunto, when the subject is less than 100 people more well taken all of his research is the research so that the population, and if the subject is more than 100 people then can be taken between 10%-15% or 20%-25% or more.⁵⁶ The population in this research is the whole grade IV SDN Percobaan 1 Malang that consists of 2 classes, namely class IVA and IVB class each class amounted to 40 students, who are described in the following table:

Table 3.2 Total grade IVA and IVB SDN Percobaan 1 Malang

	Class		The Number Of Students
	L	P	
IVA	19	21	40
IVB	16	24	40
The Total Number Of			80

The sample in this study is the whole population so that research could be said the research population. However, the reduction of data

⁵⁴ Sugiyono, *Metode Penelitian Pendidikan* (Bandung: ALFABETA CV, 2015), p.117

⁵⁵ Sugiyono, *Metode Penelitian Pendidikan* (Bandung: ALFABETA CV, 2015), p.118

⁵⁶ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendidikan Praktik*, (Jakarta:Rineka Cipta, 2006), p. 130.

means researchers summarize, select the staple things and discard unwanted data by researchers.⁵⁷ Researchers perform data reduction because at the time the research is taking place, there are students did not enter working on the question of pre-test, so that the student does not have a value of pre-test, there are students who do not follow the learning during experiments in full means the development of the students could not be formally controlled. So, the sample in this research are as follows:

Table 3.3 Total of Samples in Research

	Class		Total Of Students
	L	P	
IVA	12	18	30
IVB	12	18	30
Total			60

So, the sample in this research are 60 grade IV SDN Percobaan 1 Malang.

E. Data and Data Source

The data to be collected in this study, in outline:

1. Primary Data i.e. data collected and presented by researchers through observation. The shape of the data in the form of test results, in which the source data comes from respondents who have answered the question of pre-test.
2. Secondary Data that is the source of the data collected and retrieved researchers through journals and studies ever done as well as from information from the classroom teacher. The shape of the data in the form

⁵⁷ Sugiyono, *Metode Penelitian Pendidikan* (Bandung: ALFABETA CV, 2015), p.338

of the results of earlier research, in which the source data comes from the internet, or other print media and the value of math teachers daily repeat classes.

F. Research Instrument

The instrument is a measuring instrument used to measure the data obtained. Measuring instrument must be valid and variables so that research results be valid and reliability. Instrument in this study are as follows:

Table 3.4 Research Instrument

No.	Variable	The Form Of The Instrument
1.	Realistic Approach Of Mathematic Education (RME) (X)	-
2.	The Results Of Learning Mathematics (Y)	The question of Pre-test and Post test multiple choice shaped respectively by as much as 10 round

For the variable X does not exist because researchers who conducted instrument Learning math with Realistics approach Mathematics Education (RME) in class research with RPP and media study prepared in accordance with indicators such approach. To measure the Learning Outcomes students use the question pre-and Post test-test with the following indicators:

Table 3.5 Indicators of Research Instrument

No.	Variable	Indicator Problem	Nomor Soal	Jumlah Soal
1.	The Results Of Learning Mathematics (Y)	Through the stories of students able to determine a question of the number of objects with parts of each object (FPB)	1, 3	2 reserved
		Through the stories of the students can specify the problem a lot of objects that have been divided (FPB)	2,4	2 reserved
		Through the reserved story students can determine how big/rupiah by per individu (FPB)	5	1 reserved
		Through the reserved students may specify the time story (day) meet again (KPK)	7	1 reserved
		Through the reserved students may specify the time story meet again (KPK)	8, 9	2 reserved
		Through the reserved story students can define many objects and time reunite (FPB and KPK)	6,10	2 reserved

Test (reserved) is used to measure the cognitive abilities of students. With the assessment as follows:

Multiple Choice Question Scoring Rubric

$$\text{Score} = B/N \times 100$$

With a, B = number of items answered correctly and N = number of rounds reserved.

G. Data Collection

As for the data collection techniques used in this research are:

1. Test (Reserved)

This research will use the type of achievement test or the results of the study. The tests in this study contains a set of math problems about mathematical material in class IV. Administering tests are conducted in two forms, namely pre-and post test-test which must be carried out by the respondent. The respondents in this study are grade IV A and IV B class.

In this research tests used to measure student learning math results in cognitive, to measure cognitive ability is carried out by the multiple choice question as many as 10 reserved.

2. Observations

This study observed directly about the circumstances that exist in the field. This technique is used to know the initial state class IV, a learning tool of students, the condition of the students, and to reveal data about how the pelaksanaan learning mathematics at SDN Percobaan 1 Malang. This observation stage researchers apply as a participant observation (participating observer), the researchers gave the treatment

directly to the students by using the approach of the Realistics Mathematic Education (RME).

3. Documentation

The documentation is data relating to things or variable. This technique is used to know the curriculum used, data about the location of research, data about the object of study as well as to document the implementation and results of the research. Regular-shaped writing documents such as the value of the grade IV, RPP, the number of students, and the schedule of lessons. And shaped images such as photos of the learning activities in the classroom, learning media, research and so on.

H. Test of Reliability and Validity

1. Validity Test

Test Validity is a measure that indicates the level of difficulty or a validity instrument. Valid means the instrument can measure what you are going to be measured. A valid instrument means an digunakna measurement tool to get data (measures) it is valid. Otherwise the instrument less valid means having a low validity.⁵⁸

Test validity in the research done using bivariate Pearson (Product Moment Correlation) with the SPSS program tool 21. items reserved in the validity of the test is said to be valid if the price rhitung (rh) rtabel > (rt) on the value significance of 5%. Otherwise, the item is said to be invalid if

⁵⁸ Suharsimi Arikunto, *Dasar-Dasar Evaluasi Penelitian* (Jakarta: Bumi Aksara, 2006), p. 168

the price r_{hitung} (r_h) < r_{tabel} (r_t) on the value significance of 5%. (r_{tabel} (r_t) see in attachment).

The correlation coefficient can be calculated by using the formula of the Product Moment Pearson with the following formula:

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{[N \sum X^2 - (\sum X)^2][N \sum Y^2 - (\sum Y)^2]}}$$

Description:

r_{xy} : the level of validity

N: number of respondents

X: number of answer items

Y: number of items overall

To interpret the degree of validity, then the correlation coefficients are categorized in the following sebbagai criteria:⁵⁹

Table 3.6 Test Instrument Validity Criteria

Nilai	Kriteria
$0,81 < r_{hitung} \leq 1,00$	Very High
$0,61 < r_{hitung} \leq 0,80$	High
$0,41 < r_{hitung} \leq 0,60$	Enough
$0,21 < r_{hitung} \leq 0,40$	Low
$0,00 < r_{hitung} \leq 0.20$	Very Low

Testing the validity of the instrument in this study use the SPSS version 21 for windows. To know the kevalidan instrument can be seen

⁵⁹ Suharsimi Arikunto, *Dasar-Dasar Evaluasi Penelitian* (Jakarta: Bumi Aksara, 2006), p. 168

from the number of Product Moment, if the number of rhitung (rh) rtabel > (rt) then the instrument is declared valid.

2. Reliability Test

Reliability test used in this study is testing the internal consistency or reabilitas internal consistency method by using the Cronbrach Alpha significance level of 5%. This test using SPSS 21 tools for windows, with the correlation coefficient when criteria is greater than the critical value or if the value of Cronbrach > 0.60 Alpha then revealed the instrument reliability with high criteria. Instruments in the form of a questionnaire to measure the latent variables are most commonly used because it can be used on a questionnaire reply or the response more than two options.

$$\alpha = \left(\frac{R}{R - 1} \right) \left(1 - \frac{\sum \sigma_b^2}{\sigma_1^2} \right)$$

Description:

α : Cronbach's alpha

R: Number of test items

σ_b^2 : Test item variants

σ_1^2 : Total score variants

Reliability testing of the measuring instrument with the formula to determine the value of the alpha cronbanch alpha (α). If the alpha (α) > 0.81 then very high reliability, if the alpha between 0.80 – 0.61 then reliability is high, the 0.41 – 0.60 alpha if then dogged enough, if the alpha

reliability then $0.20 < \text{low}$ and if alpha is low, the likelihood of one or more items are not reliability.⁶⁰

Table 3.7 Reliability Coefficients Classification

Nilai	Kriteria
$0,81 < r_{hitung} \leq 1,00$	Very High
$0,61 < r_{hitung} \leq 0,80$	High
$0,41 < r_{hitung} \leq 0,60$	Enough
$0,21 < r_{hitung} \leq 0,40$	Low
$0,00 < r_{hitung} \leq 0.20$	Very Low

Reliabilitas testing instruments in the research using SPSS version 21 tool for windows. To know the reliabilitas of the instrument can be seen from the alpha value cronbanch, then compare (r_h) and rtabel (r_t). If ($r_h > r_t$) shows the reliability criteria such as table 3.7 then these worthy instrument used.

I. Data Analysis

1. Test Data Analysis Requirements

Data is already collected by researchers, will be analyzed using a quantitative analysis. Quantitative analysis used to test the hypotheses that have been proposed. Before testing the hypotheses have been put forward, the first step is done i.e. test requirements analysis. This study uses two test requirements analysis and test of normality test IE its homogeneity.

⁶⁰ M Jainuri, Uji Persyaratan Analisis Data dengan SPSS (http://files.ictmmp0.webnode.com/2000000134c5634d531/UJI_VALIDITAS_DAN_RELIABILITAS.pdf diakses pada tanggal 21 maret 2018 pukul 15.17)

a. Test of Normality

Test of normality is one part of the test requirements or test data analysis of classical assumptions, i.e., before doing the actual analysis, research data should be tested to its normalcy. The data is distributed normally, when any sample data has the range (interval) that is not too wide. Test of normality in this study using the Kolmogorov test Sminov because the data that you want to test is the shape of the interval or ratio data and single/not yet grouped frequency distribution table, on testing this program assisted with 21 for SPSS Windows. To know the reliablitas instrument can be determined from the value of the absolute (D) or Sig, with the following hypothesis:

- 1) H_0 : Data is not Gaussian
- 2) H_a : Gaussian Data

Answer alternative i.e. If the value of the absolute or Sig. > 0.05 then H_0 is rejected, meaning that data is Gaussian, but if Sig. < 0.05 H_0 is accepted then the , meaning that the data is not Gaussian.

b. Test of Homogeneity

Data is already Gaussian, then the next step is to test the equality of two variables or test its homogeneity. Its homogeneity test is done to find out whether the two groups have in common the variant data. Its homogeneity test in this study using the Test of Homogeneity of Variances with the help of the program SPSS 21 for windows. To

know its homogeneity of data can be determined from the value based on the mean, with the following hypothesis:

- 1) H_0 : Data is not homogeneous
- 2) H_a : A homogeneous Data

Answer alternative i.e. If the value based on the mean > 0.05 then H_0 is rejected, meaning that the data homogeneous, but if based on mean < 0.05 , H_0 is accepted then the meaning that the data is not homogeneous.

2. Test Of Hypothesis

Hypothesis tests are done to find out the hypothesis proposed is accepted or rejected. Hypothesis testing is done after normalization tested and tested data homogeneous. Test the hypothesis in this study using a t-Test. The t-test is one test that is used to find out or no significant difference from the two sample mean (two variable comparasion).

The t-test can be divided into 2 IE test-t for free samples (independent) and the t-test for paired samples (paired).⁶¹ Paired t-tests (paired t-test) is one method of hypothesis testing where data used is not free (pair). Test-t is comparing a measurement of both groups the same. This test is used to compare the score "before" and "after" the granting of preferential treatment to determine the changes have occurred.

⁶¹ Hartono., *Statistik Untuk Penelitian*. (Yogyakarta: Lembaga Studi Filsafat Masyarakat dan Perempuan, 2008), p.22

There are several conditions must be met to use the paired t-Test that is as follows:

- 1) One sample (each element there are two treatment)
- 2) Quantitative Data (interval – ratio)
- 3) Comes from a population of Gaussian (normal Data)

After the data belonging to qualify, then the paired t-test can be performed.

This research uses a paired t-test, because the data obtained in the study already meets the requirements of the paired t test. Computational Statistics (t count) as follows:

$$t = \frac{X_D - \mu_0}{\frac{S_D}{\sqrt{n}}}$$

Where,

$$X_d = \frac{\sum D}{n}$$

$$S_d = \sqrt{\frac{1}{n-1} \left\{ \sum D^2 - \frac{(\sum D)^2}{n} \right\}}$$

Description:

$$D = \text{Selisih } X_1 \text{ dan } X_2 (X_1 - X_2)$$

n = jumlah sampel

X_{bar} = Rata – rata

S_d = Standart Deviasi dari d .

To ease testing hypotheses, then this test using SPSS version 21 for windows. After tested using SPSS output 3 will appear as follows:

1) The average of the results of the study of Pre-and Post-test test

The difference in value between the pre-and Post test-test can be seen from the average (Mean). The mean is the average of the independence of each measurement. N is the number of samples. Then Std. Deviation of raw, while swift is Std. Error is an error of baku. From the average obtained then are known to ride turunya the results of the study.

2) The correlation of the results of the study of Pre-and Post-test test

Correlation is the relationships between members of a pair. A correlation can be seen from the Sig value. If the value is Sig. > 0.05 H_0 is accepted, then this means that there is no correlation. However, if the value is Sig. < 0.05 then H_0 is rejected, the meaning that there is a correlation. With:

H_0 : No Correlation

H_a : There is a Correlation

3) Approach to influence of RME.

On this output is described:⁶²

- a. The mean is the average difference, obtained from the average of pre-and post test-test.

⁶² M Jainuri, Uji Persyaratan Analisis Data dengan SPSS (http://files.ictmmp0.webnode.com/2000000134c5634d531/UJI_VALIDITAS_DAN_RELIABILITAS.pdf diakses pada tanggal 21 maret 2018 pukul 15.17)

- b. STD. Deviation is the junction of the raw difference between pre and post tests-test.
- c. Confidence Interval is the area that shows the existence of differences in levels of confidence 95% or Sig. 0.05.
- d. To see the influence of the before and after the giving of the treatment can be viewed from the value of GIS., if the value is Sig. ≤ 0.05 then H_0 is rejected, meaning that there is influence and if the value is Sig. ≥ 0.05 H_0 is accepted, then this means that there is no influence.

H_0 : No influence of the application of the approach of RME

H_a : There is an influence of the approach of RME

J. Research Procedure

The procedure of research will be conducted through several stages. Here are some of the stages will be carried out in this study:

1. Preparation phase

Preparation phase is done by doing a preliminary study and drafting research. The design research of which is to choose a problem, formulate the problem, formulate the basic assumptions, choosing approaches, and define the variables and data source.

This research only started after getting permission from the supervising lecturer, so researchers get input and advice as the guideline in carrying out research in the field.

2. Stage of implementation of the

The activities included in this stage include the application of mathematic education with a realistic model and strategy that has meant. Here are the steps of learning in class and a class wants control in research that is described in the table below.

Table 3.8 Steps Learning In Treatment Class

No.	The Components Of The Treatment	Classroom Research
1.	<i>Pretest</i>	Test/multiple choice question as many as 10 reserved
2.	The Learning Process	Learning activities using the approach of RME
3.	<i>Posttest</i>	Test/multiple choice question as many as 10 reserved
4.	Learning Material	Mathematics by adjusting the syllabus/KD/subject matter of research place school
5.	Time	Study conducted six sessions @ 2 hours lesson 2 x 35 minute (70 minutes/meetings)

3. Completion Phase

Activities performed at this stage include data processing, data interpretation, writing research reports. Writing research results made by writing format of the faculty.

CHAPTER IV

EXPOSURE DATA AND RESEARCH RESULTS

A. PROFILE Of SDN Percobaan 1 Malang

1. The Identity Of School

SDN Percobaan 1 Malang which is usually abbreviated as SDNP 1 Malang is the basic level of institutions that are in the JL. Magelang No.4 Kelurahan, Kecamatan Sumber Sari Lowokwaru, Malang East Java province and was established in 1968 and later that year had started to operate. SDNP has Unfortunate 1 class 13 class which consists of class I to class VI with groups of learning (rombel) which consists of class I have 2 rombel, class II has 2 rombel, class III has 2 rombel, class IV had 2 rombel, class V have 2 rombel and class VI had 3 rombel.

In addition to having 13 rombel/classrooms, the school also has a lap lap computer room, SCIENCE room, art room, resource room teachers, principals, administrative spaces, a library, living Hall, INFIRMARY, canteen of the school consists of 5 space, a prayer hall, storeroom, kitchen, exercise room, post guards, student bathrooms consisting of 9 spaces, the teacher's bathroom that consists of 3 rooms, spaces and school guards KKG. This school has a land area of about 4,213 m² with built-up around 1,799.5 m² located on the land belonging to the State University of Malang.

2017/2018 of the academic year total number of students grades I-VI. i.e. 429 students. And the number of teachers and staff there are 30

guys comprised of a school principal, teachers and CIVIL SERVANTS 15 6 teacher GTT, the 1 person and 1 person GTT and guard schools amounted to 6 people. To support the smooth running of the process of learning in the school library with good condition and has a book of reference as much as 1030 titles consisting of book reading enrichment of 5030 copies and books another reading 5000 numbered copies. So that students can benefit from learning in school hours as possible as well as the physical condition of the schools is still good and well maintained.

2. The History Of School

Primary school Experimental Country 1 Unfortunate former school run by IKIP Malang, named IKIP Malang Laboratory ELEMENTARY SCHOOL, which was founded by Prof. Dr. Supartinah Pakasi, in 1968. The year 1973 became the pioneering Project School Development (PPSP) in IKIP Malang assisted. Then drop the Minister SK No. 027/V/1986, which is about the management of the school that carries out printisan education redirected the operations to regional offices of the East Java province.

Then drop the Minister SK No. 0707/P/1986, of penegerian Elementary School Pioneer Project Development (PPSP) IKIP Malang, became a primary school built in the Stanford Regional in order to Prop. East Java.

Year 1987, dropping SK Minister no. 0757/O/1987, of penegerian four (4) primary school Daerah Istimewa Yogyakarta and changes of the Minister's decision No. 0326/0/1978 and no. 0707/P/1986, Stanford into SD SD Negeri Malang in Experimental in order to maintain the Regional Office assisted the province of East Java.

Further with the introduction of OTODA, SDN Experiment under the Office of education of Malang. The Mayor's decision Unfortunate No. 138 year 2004 March 17, 2004, concerning the determination of the institutional change of the primary school of State Experiments into elementary schools of the country Experiment 1 of Malang.

3. Vision, Mission And Goals

This school has a vision of "Harmonious Generations learned, Noble Character, and Berwawasn of the environment", to achieve that vision then SDNP 1 Unfortunate use of strategies that are listed in the mission i.e. which are:

- 1) Developing a school culture based on IMTAK to control IPTEKS.
- 2) Develop a healthy school environment and school climate, develop environmentally active learning, innovative, creative, effective, and fun (PAIKEM).
- 3) Organizes educational and learning to principled "education for all".
- 4) Organizing a school management is effective, participatory, transparent and accountable.

- 5) Develop and apply the values of the character and the lofty values of the nation, whether at school, at home, or in the community.
- 6) Develop awareness of the environment for stakeholders and the citizens of good school physical environment ataupun non fisikdan goals.

Vision and mission were made with the aim of:

- 1) Can practice religious teachings as a result of the learning process and the development of the results of the process of learning and self development relevant to the grade level
- 2) Increase the value of the average grade final exams
- 3) Grab the championship race subjects, art, sports, city level at least annually
- 4) Realizing environment-friendly school so it can become a driving force of the local community.
- 5) Develop the potential of learners and educators so that it becomes a winning school and the interest of the community.
- 6) Develop environmental activities as well as creating green school.

4. Objective Conditions and School Achievement

The hapless SDN Percobaan 1 Malang already implement the learning activities Curriculum 2013 class 1-6 with hours of instruction began at 06.30 kulturem preceded by and communal prayer except Friday plus gymnastics along with teachers and students. With the additional

lessons for grades 4 to 6. To know the talent and interests of students the school has extracurricular activities which include: Scouts, karawitan, recite, drum band, karate, swimming, drawing, dancing, English and ICT.

The development of students can be seen from the number of students accepted each year. Academic year 2013/2014 students who sign up are 140 and accept only 84 children, then the academic year 2014/2015 students enrolling as many as 130 and received only 83 children, next on year 2015/2016 students enrolling as many as 125 and received only 75 children, in 2016/2017 students enrolling as many as 130 and earned only 67 children, and in the school year the school year there were 2017/2018 students enrolling a number of 110 children and received only 56 children. The following charts the development of new students and are accepted.

New Student Registration Chart

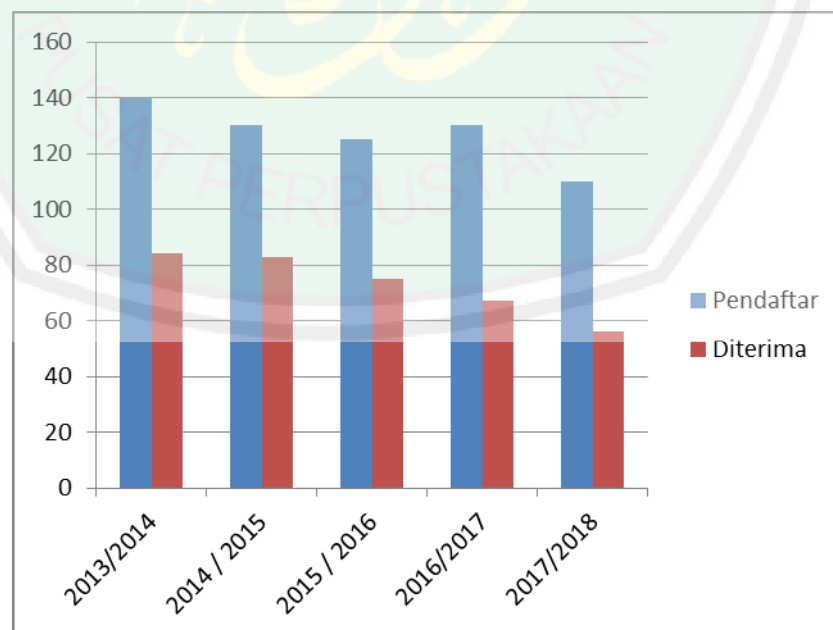


Figure 4.1 development of Students

With the State of the students at each school year which comprised 13 rombongan, which are described with the following image:

Graph Total of students per school year



Figure 4.2 State Of Students

Based on Figure 3.2 can note that the number of students in the teaching 2013/2014 is 501, the number of students in the teaching 2014/2015 is 489, the number of students in the teaching 2015/2016 is 483, the number of students in the teaching of 2016/2017 was 464, and number of students in the teaching of 2017/2018 was 429. From the explanation may be that the development conclusion students every year are experiencing rising low.

5. The Flagship Program Of Educational Character And Integrity

This school has a flagship education program character and integrity, which consists of two programs, namely programs self development and conditioning program. Self development program aims to provide opportunity to the students to develop and express themselves

according to the needs, interests, talent each learners in accordance with the conditions of the school. Form SDN-development activities include: 1 the Scout Trial, karawitan, recite, drum band, karate, swimming, drawing, dancing, English and ICT.

Program conditioning conditioning conditioning-namely that in SDN Percobaan 1 Malang include: shaking hands at the time of the morning, the morning prayer together, an increased sense of nationalism, the prayer congregation, saving, and j a clean race.

6. Data On Teachers And School

The following is a list of teachers and staff employees on Probation during the period 2017 SDN Percobaan 1 Malang.

NO	NAMA	L/P	IJAZAH TERAHIR DAN JURUSAN	JABATAN DI SEKOLAH (GURU KLS BRP,KET MENGAJAR)	STATUS KEPEGAWAIAN
1	Dra. Anny Saida	P	S1 Matematika	Kepala Sekolah	PNS
2	Dra. Endang Sulastri	P	S1 - Pend. Bhs. Indonesia	Guru Kelas VI C	PNS
3	Fauziati, S.PdI	P	S1- PAI	Guru PAI Kls. IV - VI	PNS
4	Dwi Windari, S.Pd.	P	S1 - Adm. Pendidikan	Guru Kelas II B	PNS
5	Sophy Pamudya Herany, S.Pd.	P	S1 - Pend. Bhs. Indonesia	Guru Kelas I A	PNS
6	Esther Warmudji Astuti, S.Pd.	P	S1 – PGSD	Guru kelas III B	PNS
7	Syarofah, S.Pd.	P	S1 - Pend. Bhs. Indonesia	Guru kelas II A	PNS
8	Setiatini, M.Pd.	P	S2- IPS	Guru Kelas V A	PNS

9	Rahayu Sri Wahyuani, S.Pd.	P	S1 - Pend. Bhs. Indonesia	Guru Kelas IV A	PNS
10	Nurul Hidayati, S.Pd.	P	S1 – PGSD	Guru Kelas VI A	PNS
11	Imam Wahyudi, S.Pd.	L	S1 – PKn	Guru Kelas VI B	PNS
12	Dewi Urifah, S.Pd	P	S1 – PGSD	Guru Kelas I B	PNS
13	Vita Nur Aini, S.Pd	P	S1 – PGSD	Guru Kelas IV B	PNS
14	Sumiyarti	P	KPAA	Staf TU	PNS
15	Choirul Mustafik, S.Pd	L	S1 - Pend. Bhs. Indonesia	Guru OR Kls. I - III	PNS
16	Septi Anna Dia Sari, S.Pd	P	S1 – PGSD	Guru kelas V B	PNS
17	Tutik Wahyuni, S.Pd	P	S1 - Pend. Bhs. Indonesia	Guru Kelas III A	PNS
18	Indah Susanti, S.Pd	P	S1 – BKP	GPK	GTT
19	Misbachul Huda	L	D2 – PGSD	Guru PAI Kls. I - III	GTT
20	Devi Retno Palupi, S.Pd	P	S1 - Pend. Bhs. Inggris	Guru Bhs. Inggris I - VI	GTT
21	Anang Widodo Raharjo, S.Pd	L	S1 – PJKR	Guru OR Kls. IV - VI	GTT
22	Faried Agus Prasetyo	L	SMA – IPS	Pustakawan	PTT
23	Tri Cahyo Wibowo	L	SMK - Listrik	Satpam	PTT
24	Wakit Muktajin	L	PAKET C - IPS	Petugas Kebersihan	PTT
25	Sujinah	P	SD	Petugas Kebersihan	PTT
26	Hamid Burhanuddin	L	PAKET C - IPS	Satpam	PTT
27	Sutikno	L	PAKET C - IPS	Satpam	PTT
28	Panca Ella Dyah P., SP	P	S1 - Pertanian	Guru TIK Kls. I - VI	GTT
29	Feni Maulina, S.Pd	P	S1 – PGSD	Guru B.Jawa Kls VI	GTT

B. Exposure Data

Data research results Influence Approach Realistic Mathematics Education (RME) against the results of learning math presented by researchers is a recording of the entire activity of the implementation of the action that takes place in the SDN Percobaan 1 Malang.

1. Pre-Activity Experiments

The first step is done the experiment before researchers is planning. Some important things done researchers at this stage are as follows:

- a. Make the RPP correspond to realistic mathematics learning indicators.
- b. Prepare a media learning about matter FPB and KPK
- c. Make a pre-order question test
- d. Request a list of names of students wants a class

As a first step the researchers make Learning implementation plan (RPP) and the learning media made by the researcher then invited to the supervisor and lecturer lecturers who are experts in their field, after receiving input from the lecturer then researchers fine-tune the RPP and make the learning media. Next the researchers make the question of pre-test of FPB material and KPK class IV semester 2 multiple choice question as many as 10.

First researchers make pre-release test question 10 question multiple choice and essay question 2, then the matter should be referred to the supervising professors and lecturers who are experts in their field. After the consult, researchers must revise its 5 matter and 2 essay question

because the sentence in question is considered ambiguous in the context and less varied. After the revised then consult again and new researcher can be distributed to students who will be made a subject in the study. The question of pre-test approved by the lecturers are 10 multiple choice question. The question of Pre-test was not tested because it is only used to figure out how far a given material will be understanding and only validated by Professor who's an expert in his field. After the question of pre-test deployed investigators asked for a list of the names of the students of class IV to class teachers each and assess the results of pre-test already carried out by students.

2. The Implementation of Experiment

a. The 1st Meeting

The first meeting was held on Monday January 22, 2018. At the first meeting, researchers held a Pre-test of FPB material and the KPK. Pre-test lasts from 07.00 – 08.30 for approximately 90 minutes. Pre-test followed by as much as 74 students from two classes. Pre-test used to find out how far the students understanding of the material to be taught. When Pre-test in progress many students complained that the question of Pre-test hard and yet not learning reserved story. Researchers responded with the answer that neutral might and told students to exercise the corresponding ability. Here is the data Pre-test results are presented in the following table:

Table 4.2 Analysis Results of Pre-test Experiment Class

No.	Description	Result
1	The number of student participants of pre-test	60
2	Highest Value	70
3	Lowest Value	10
4	Total value of pre-test	2460
5	The average value of pre-test	41
6	The number of students who study thoroughly	0
7	Percentage of thoroughly learning	0%
8	The number of students who have not thoroughly studied	60
9	Percentage of the study hadn't	100%

Based on table 4.1 results of the analysis of Pre-test, then it can be concluded that prior learning is applied mathematics with a Realistic approach of Mathematic Education (RME) results of study away from the standard value thorough learn and do not meet the value KKM i.e. 75. This is evidenced by the average value of Pre-test of 41 and students expressed satisfaction as much as 0 or no student who has been completed, it can be seen from the percentage of students who hadn't i.e. amounting to 0%. While students who otherwise thoroughly as many as 60 students or all students reply follow Pre-test has been completed, otherwise it can be seen from the percentage who are not yet 100% i.e. of tentus. Thorough on Pre-test in experimental classes can be described in the diagram below:

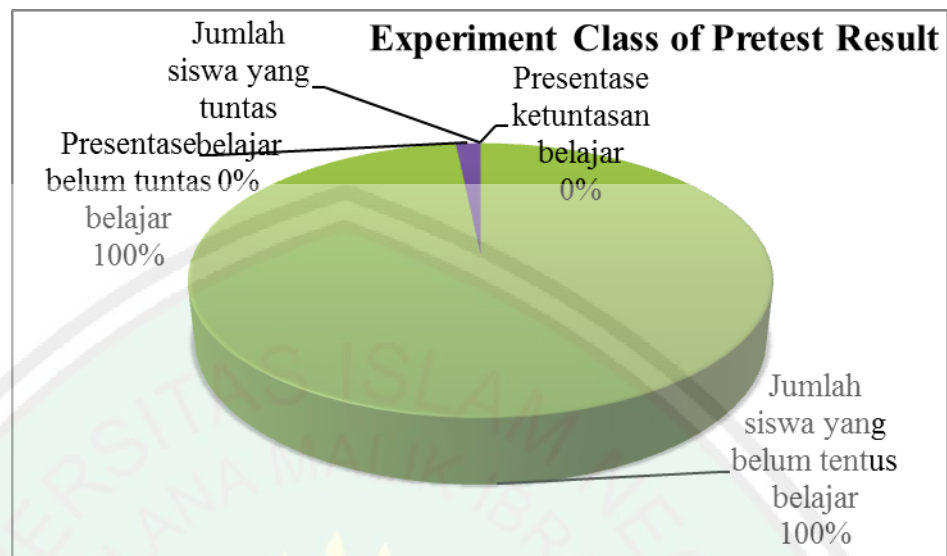


Figure 4.3 Student's Achievement Of Pretest in Experiments Class

Based on the results of the ketuntasan study 4.2 picture, then researchers will hold experiments that aim to find out the influence of learning approach Realistic Mathematic Education (RME) against the results of learning math 4th grade on lessons Mathematics at SDN Percobaan 1 Malang. Researchers hope the existence of mathematical learning, students can more easily understand mathematical concepts are realistic and can improve student learning outcomes and learning throughout the ketuntasan students can be achieved with 100%.

b. The 2nd Meeting

The second meeting was held on Wednesday February 7, 2018 at 07.00 – 08.10 for 2 hours of instruction. The number of students who attend as many as 79 of 2 class, but only 60 students were

examined. In the execution of experiments the researchers acted as teacher. Researchers carry out the learning process in accordance with the plan of implementation of the learning (RPP). The preliminary stage begins with researchers say greetings followed by setting up the physical condition of the students, absent of students, preparing textbooks and learning objectives. In addition researchers also provide the stimulus of the material to be studied.

Learning starts with the researcher provide a contextual issues relating to material that is a factor of the number to students, then students are given time to write and understand these problems. After that the researchers guiding students to solve problems. The problems were resolved together with the way researchers shows 2 students to divide the activities of demonstrations plastic balls to all friends and write down the results of the divisions on the Board. After students have finished handing out plastic balls, the researchers did a q & a to the students about the Division that uses a plastic ball.

Researchers continue learning activities i.e. delivering 4 different problem that has to be done by any group with each student's own answer without discussion. Researchers provide less than 15 minutes to complete the issue or problem that has been given. After the given time ends, and then researchers named 4 students representative group to resolve the problem on the Board, the other students listen to

a friend of his who worked on on the Board. Researchers help guide and correct answers when students are less true.

In the settlement of the problem of students using the simplest way they know, students are very smoothly in the count but when interpreting answers to students a bit of difficulty, sehingga researchers attributing a little guidance so that students can write the answer. Learning then concludes with a review of material already learned.

c. The 3rd Meeting

The third meeting was held on Wednesday February 14, 2018 at 07.00 – 08.10 for 2 hours of instruction. The number of students who attend as many as 78 of 2 class, but only 60 students were examined. Learning at this meeting that is about the biggest Alliance Factors (FPB). To facilitate students in understanding the FPB, researchers using media Dakon mathematics (DAKOTA). Researchers make the learning media so that students can play and learn. How to use learning media learning mathematics in DAKOTA, discipline is as follows:

- 1) Provides a reserved about the FPB, namely in the form of a question the story because in this learning is learning math, discipline.
- 2) Can be played over 2 or more persons, subject matter or question.

- 3) Students place the plastic ball into numbers that are on the Board of the DAKOTA, the number entered is a number that can divide the number of existing question.
- 4) After entering numbers, students mentioned the figures inside are two plastic balls.
- 5) Figure that there are 2 plastic balls is the answer of the question or the FPB

Here is a picture of the DAKOTA's media:



Figure 4.4 DAKOTA Of Learning Media

Learning activities initiated by Researchers provide contextual issues are resolved using the DAKOTA Media. Before researchers resolve the problem, the researchers explain about how to use media DAKOTA. Then researchers solve the problem with media students DAKOTA and very enthusiastic in listening and paying attention to the media of the DAKOTA. After that, researchers give a challenge to students to resolve problems in the form of reserved DAKOTA using media stories. Most of the

students want to answer the question with media DAKON, but researchers choose 2 students by giving the question of apportionment to the students, and can answer most quickly so he could resolve the issue with the media DAKON.

Students who answered the question very spirited despite the somewhat confused in entering the numbers on the DAKOTA. students who do not join the answer come into enthusiastic to help answer it by giving the idea to put in some numbers in the DAKOTA Board. Learning takes place with a interesting and arousing students ' passion and liveliness. Then researchers, forming students into five groups and provide 1 problems to be resolved using media DAKOTA. Projected problem conducted alternately in front of the class with the guidance of researchers.

Study concludes with a researcher invites students to formal mathematics, i.e. understand symbols and numbers in a mathematical sense, summed up the FPB and determine the 3 ways to search for FPB.

d. The 4th Meeting

The fourth meeting was held on Wednesday 21 February 2018 at 07.00 – 08.10 for 2 hours of instruction. The number of students who attend as many as 78 of 2 class, but only 60 students were examined. Learning starts with the researcher provide a contextual

issues relating to material that is a multiple of the smallest Alliance (CCA) to students, then students are given time to write and understand these problems. After that the researchers guiding students to solve problems. At this fourth meeting, activities and learning the same steps with the second meeting but the difference on the fourth meeting of researchers using media learning DAKOTA.

e. The 5th Meeting

The fourth meeting was held on Wednesday 21 February 2018 at 07.00 – 08.10 for 2 hours of instruction. The number of students who attend as many as 78 of 2 class, but only 60 students were examined. On this fifth meeting, researchers gave the essay question as much as exercise 5 grains. Researchers divided the students into 8 groups, the Division of random or random groups so that students have a high ability can share insight to students who have a low ability.

Each group discussion for solve problem that has been given by the researchers. Students were given less than 20 minutes to resolve these problems. When working on the problem, many groups are the less ingredients with reserved number 4, then the researcher explains the meaning of the question number 4 and guide each group in order to menyelesaikan the question of the number 4. After the given time ends, a representative from each group gathers sheet of answer to researchers, because learning time hampr ended, researchers discuss only the most

difficult problem for students. Students listen to the explanation of later researchers study concludes with researchers deliver the message and motivation to learn because the next meeting be held post-test.

3. Post Experiment

1) To Make And Test Question Post-Test

Post-war experimentation activities beginning with the researchers prepare and make post-question test. The process of making the question of post-test i.e. researchers he reserved then should be referred to the supervisor and lecturer lecturers who are experts in their field, after the question of post-test approved then piloted the question researchers in other schools with respondents the same level i.e. class IV. Trial results are analyzed and tested using SPSS for windows, 21 test results validity shows that there are 5 invalid question. So the researchers had to do revisions matter invalid and consult to a lecturer, having revised and tested again, the result shows all the question is valid and reliability. The following trial results instrument will be presented as follows:

Table 4.2 The Results of Validity

Grain Problem	r count	r tables	Description	Criteria
problem 1	0534	≥ 0.355	Valid	High
reserved 2	0748	≥ 0.355	Valid	High
reserved 3	0391	≥ 0.355	Valid	Low
reserved 4	0449	≥ 0.355	Valid	Enough
question 5	0381	≥ 0.355	Valid	Low

reserved 6	0412	≥ 0.355	Valid	Enough
question 7	0.46	≥ 0.355	Valid	Enough
reserved 8	0367	≥ 0.355	Valid	Low
question 9	0584	≥ 0.355	Valid	Enough
reserved 10	0655	≥ 0.355	Valid	High

Based on table 4.2, an instrument in the form of multiple choice question as many as 10 grains that have been tested, with each count $> r_r$ table which means every grain of matter revealed valid, that such a matter worthy arinya used to measure ability cognitive students. Next to the instrument reliability test results are as follows:

Table 4.3 Reliability Test Of Results

Case Processing Summary

		N	%
Cases	Valid	31	100.0
	Excluded ^a	0	.0
	Total	31	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.672	10

With Reliability Coefficients Classification as follows:

Table 4.4 Reliability Coefficients Classification

Value	Criteria
$0,81 < r_{hitung} \leq 1,00$	Very High

$0,61 < r_{hitung} \leq 0,80$	High
$0,41 < r_{hitung} \leq 0,60$	Enough
$0,21 < r_{hitung} \leq 0,40$	Low
$0,00 < r_{hitung} \leq 0,20$	Very Low

Based on table 4.3, alpha value is 0.672 which means instrument has a high reliability, which means the question of feasibility.

2) Share A Matter Of Post-Test

The fifth meeting was held on Wednesday 7 March 2018 at 07.00 – 08.10 for 2 hours of instruction. At this meeting, researchers give the matter of Post-test as many as 10 question multiple choice to students. Reserved Post-test made with 2 code problem, namely A and B with the aim of not cheating students, though with two codes matter but a matter of Post-test is the same only the scrambled number. Researchers also confirmed to the students not to answer with his friend cheating each other during work Post-question test. Occasionally seen some students discuss in working on the problem, researchers directly rebuked him. Nevertheless, the students look orderly and passion in working on the matter given by the researchers. On this occasion the researchers monitor students with around to have a look at the work of students and its accompanying if there are students who are having difficulty in understanding the question.

3) Analyzing The Results Of The Post-Test

Researchers asked the students to collect the answer sheet when the time has expired. After the completion of the work the question, researchers corrected the answers to students. The formula used to figure out the understanding of students and the level of achievement of the learning results of students are:

$$N = \frac{\text{Skor yang diperoleh}}{\text{Skor Maksimal}} \times 100$$

As for the Post-test results are presented in the form of the following table:

Table 4.5 Results of Analysis of Post-test Experiment Class

No.	Description	Result
1	The number of student participants of pre-test	60
2	Highest Value	100
3	Lowest Value	20
4	Total value of pre-test	4140
5	The average value of pre-test	69
6	The number of students who study thoroughly	24
7	Percentage of thoroughly learning	40%
8	The number of students who have not thoroughly studied	36
9	Percentage of the study hadn't	60%

Based on table 4.5 results of the *Post-test* on Mathematical lesson, fourth Grade in the SDN Percobaan 1 Malang with Approach *Realistic Mathematic Education* (RME), the results of student learning increased from results of *Pre-test* before using an approach *Realistic Mathematic Education* (RME). Although the average grade is only 69% less than

standard ketuntasan learning, but it is already proving that an increase in the results of the study before using an approach *Realistic Mathematic Education* (RME) and after using Approach *Realistic Mathematic Education* (RME). Students expressed satisfaction as much as 24 or 40% of students obtained by the number of students with a value 75, while the who hadn't as much as 36 or 60% of students obtained by the number of students with a value 75, thoroughly study on *Post-test* in experimental classes (after treatment) can be described in the following

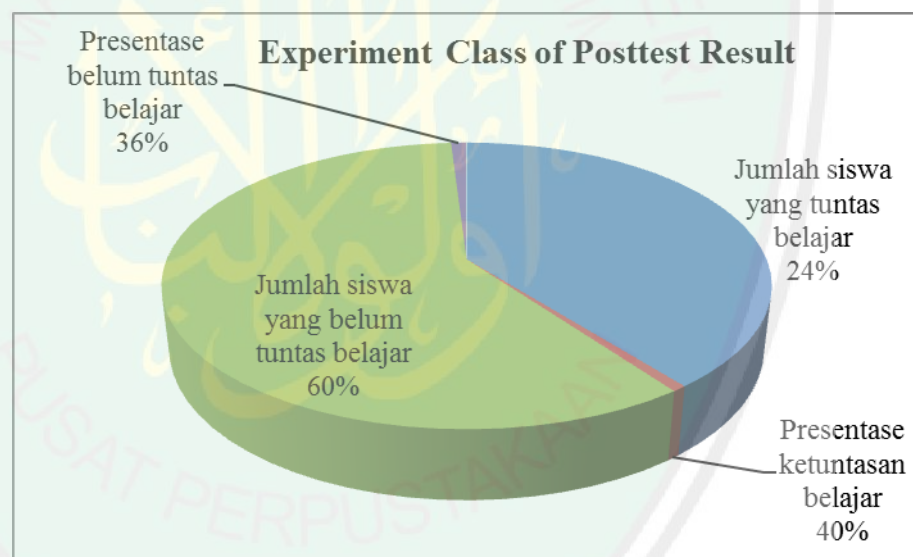


Figure 4.5 Student's Of Posttest In Experiment Class

The results of the *Post-test* already known will then be compared with the results of *Pre-test* before administering the treatment, the difference of this comparison is the influence of approach *Realistic Mathematic Education* against the results of student learning.

Here is a breakdown of activities pembelajaran for six sessions:

Table 4.6 Learning Activities with RME Of Approach

The meeting to	Day/ The date of the	Learning Activities	Subject Matter	Learning Media
1	Monday, January 18, 2018	<i>Pre-test</i>	FPB and KPK	-
2	Wednesday, January 31, 2018	Split the Plastic Balls to each friend and worked on the problem	The number of factors and Factor Fellowship	Plastic Balls
3	Wednesday, February 7, 2018	Resolve the problem with the media stories DAKOTA	The Largest Alliance Factors (FPB)	The Dakon Board Mathematics (DAKOTA)
4	Wednesday, February 14, 2018	Resolve the problem with the media stories DAKOTA	Multiples Of Smallest Guild (KPK)	The Dakon Board Mathematics (DAKOTA)
5	Wednesday, February 21, 2018	Practice reserved FPB and KPK	FPB and KPK	-
6	Wednesday, March 7, 2018	<i>Post-test</i>	FPB and KPK	-

C. RESEARCH RESULTS

1. The Data results of the *pre-test* and *Post test*

Data *pre-test* is a score derived from each respondent yang has been working on the question of *pre-test*. *Pre-test* is done to find out the capabilities of the students. While the data *post-test* is a score obtained each respondent who has been working on *Post-test*. *Post-test* is done to learn the capabilities of respondents to end after being given the treatment.

As for the frequency distribution study results data *Pre test* and *Post test* will be presented as follows:

Table 4.7 Data Learning Result Of Pre-and Post Test

The Range Of Values	The Number Of Students		Description	Percentage of the
	Class			
	Before being given Treatment	After being given the Treatment		
86-100	0	11	Thoroughly	0% of students before being given treatment and 40% of students after being given the treatment
75-85	0	13		
56-74	11	23	Hadn't	100% of students before being given treatment and 60% of students after being given the treatment
36-55	27	11		
0-35	22	2		

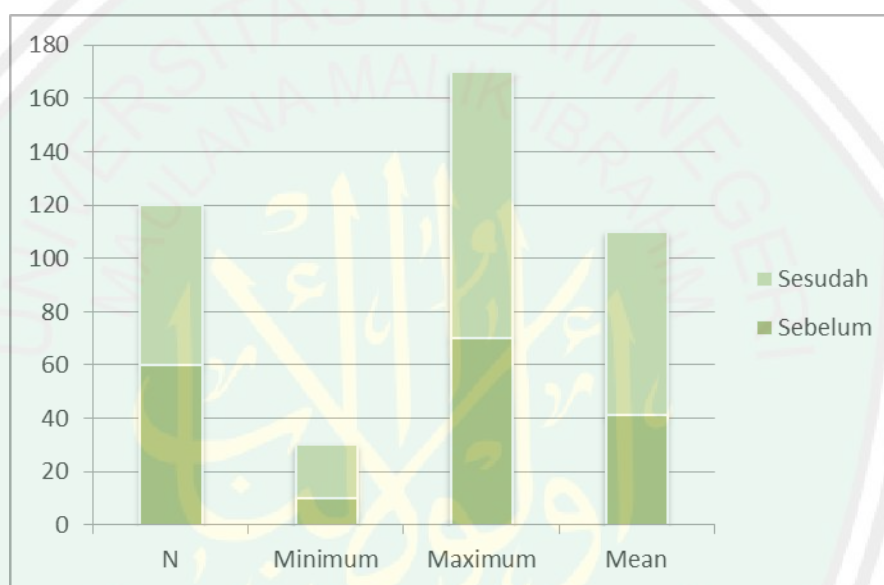
From the table above shows that the results of the study early (Pre-test) students in the class that have not been given the treatment criteria is 0% complete and the criteria hadn't is 100%. While the results of the study end (Post-test) students with complete criteria is 40% and the criteria hadn't of 60%.

Following a count of data presented in a descriptive ability of the beginning and end of the students on learning:

Table 4.8 Student's Achievement Of Description

Descriptive Statistics				
	N	Minimum	Maximum	Mean
Before	60	10	70	41
After	60	20	100	69

The description of the above data can be seen in chart form as follows:

**Figure 4.6 Student's Achievement of Chart**

2. Test Of Hypothesis

Hypothesis on the formulation of the first problem is H_0 reads, no influence on the approach to Realistic Mathematics Education (RME) against the results of student learning and the hypothesis on the second formula is H_1 which reads, there are influence on the approach to Realistic Mathematics Education (RME) against the results of the study.

This hypothesis test is done by comparing the results of the study early (Pre-test) and the results of the study end (Post-test). T test or test

hypotheses is performed after test normality and its homogeneity test data that has been obtained. Following are the results of the test the normality of 60 students.

Table 4.9 Normality Data

One-Sample Kolmogorov-Smirnov Test

		Pretest	Posttest
N		60	60
Normal Parameters ^{a,b}	Mean	41.0000	69.0000
	Std. Deviation	14.57883	18.01130
	Absolute	.161	.158
Most Extreme Differences	Positive	.161	.158
	Negative	-.106	-.129
Kolmogorov-Smirnov Z		1.245	1.224
Asymp. Sig. (2-tailed)		.090	.100

a. Test distribution is Normal.

b. Calculated from data.

Based on table 4.9, note that the value of the absolute (D) data pre-test of 0.16, meaning $0.161 > 0.05$ and absolute value (D) data post-test of 0.158, $0.158 > 0.05$. So that it can be concluded that the data pre test and post test tested have tested Gaussian. Next is its homogeneity test result data is as follows:

Table 4.10 Homogeneity Data

Test of Homogeneity of Variance^{a,b,c}

		Levene Statistic	df1	df2	Sig.
Pretest	Based on Mean	.288	5	51	.918
	Based on Median	.193	5	51	.964
	Based on Median and with adjusted df	.193	5	45.887	.964

Based on trimmed mean	.267	5	51	.929
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- Pretest is constant when Posttest = 20.00. It has been omitted.
- Pretest is constant when Posttest = 30.00. It has been omitted.
- Pretest is constant when Posttest = 40.00. It has been omitted.

Based on table 4.10, be aware that the values based on the mean of 0, meaning that both groups have 288 level study results homogeneous. After the data is known to be normal and homogeneous then the next is test or test hypotheses t.

t-test was conducted to test or whether there is a difference between the value of Pre-test with Post-test, t-test is required to see the significance of level difference. Following are the results of the t-test formula to respond to the problem, namely:

- The difference in value between the Pre test and Post test

Table 4.11 Average Student Achievement

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	41.0000	60	14.57883	1.88212
	Posttest	69.0000	60	18.01130	2.32525

The average value of Pre-test was 41,000 and an average value of Post-test is 69,000, and the difference of both average gained $69,000 - 41,000 = 28000$. the difference shows that before and after being given the treatment experienced a rise in the average of the results of the study.

b) Correlation before and after the application of the approach of RME

Table 4.12 Student's Achievement Correlation Pre test and Post test

		N	Correlation	Sig.
Pair 1	Pretest & Posttest	60	.385	.002

Based on table 4.12, the correlation value i.e., 0.002, meaning that there is a relationship between before and after using RME. Approach to *Realistic Mathematics Education* (RME) correlated significantly with the results of student learning.

c) The Influence Of The Use Of The Approach Of RME

Table 4.13 Influence Applying of the approach of RME

		Paired Differences				T	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
					Lower	Upper		
Pair 1	Pretest – Posttest	-28.0000	18.30069	2.36261	-32.72757	-23.27243	-11.851	.000

Based on table 4.13, the value of Sig is 0.000. because the Sig.0.05. Meaning that H₀ is rejected, then there is an influence on the

application of the approach to student learning outcomes against the RME in SDN Percobaan 1 Malang.

3. Influence of RME Approach on Achievement Student

The effect of the RME approach on student's achievement can be seen from student progress in answering pretest and posttest questions. The question of pretest and posttest consists of 10 FPB and KPK materials. Problem number 1 to question 5 is a matter related to FPB material and question number 6 to number 10 relates to the material of KPK. The following is the result of answer analysis of pretest and posttest material of FPB and FPB:

Table 4.14 Results of Pretest and Posttest Analysis of FPB Material

Types of Problems	FPB	Number of Problems True	Number of Problems False	Percent Achievement of Right Answers	Percent Achievement of Wrong Answers
Pretest	Soal 1	47	13	78%	22%
	Soal 2	48	12	80%	20%
	Soal 3	45	15	75%	25%
	Soal 4	19	41	32%	68%
	Soal 5	11	49	18%	82%
Posttest	Soal 1	60	0	100%	0%
	Soal 2	49	11	82%	18%
	Soal 3	48	12	80%	20%
	Soal 4	33	27	55%	45%
	Soal 5	42	18	70%	30%

Based on Table 4:14, the students' development in the answer to FPB has been shown to increase in number 1 of correct answer to the

pretest problem of 78% and on the posttest problem by 100%, so that the development is 12%. In question number 2 the pretest percentage of the correct answer is 80% and the number 2 on the posttest is 82%, progressing by 2%. Then On the question number 3 pretest presentation the correct answer number is 75% and the number 3 on the posttest by 80%, progressed by 5%. From the table it can be concluded that the students experience the development of answering FPB questions correctly, and the presentation of wrong answers on each number suffered decline. This means the number of correct answers is greater than the number of incorrect answers. So the RME approach can improve in understanding mathematical problems. Furthermore, the development of students in answering questions relating to the material KPK. The following is a table of analysis of the results of the answers to the question of pretest and posttest on KPK material:

Table 4.15 Results of Pretest and Posttest Analysis of KPK Material

Types of Problems	KPK	Number of Problems True	Number of Problems False	Percent Achievement of Right Answers	Percent Achievement of Wrong Answers
Pretest	Soal 6	23	37	38%	62%
	Soal 7	10	50	17%	83%
	Soal 8	13	47	22%	78%
	Soal 9	18	42	30%	70%
	Soal 10	11	49	18%	82%
Posttest	Soal 6	38	22	63%	37%
	Soal 7	49	11	82%	18%
	Soal 8	40	20	67%	33%
	Soal 9	25	35	42%	58%
	Soal 10	30	30	50%	50%

Based on Table 4:15, the students' progress in answering the matter of KPK can be seen from the percentage of correct answers starting from the number 6 pretest questions have correct answer presentase of 38% and the number 6 on the posttest problem of 63% so as to experience an increase of 25%. Then the number 7 on the pretest percentage of 17% and the posttest percentage of 82% so that the increase of 65%. It can be concluded that the percentage of correct answers in each number undergoes development expressed in percentage increase. This means that with RME approach students can understand the material of KPK easily.

Based on the analysis of students' answers about FPB and KPK material in tables 4:14 and 4:15 it appears that the correct answer on each number has progressed and the wrong answer on each number decreased, it can be concluded that the RME approach on learning mathematics has an influence on the increase of student learning outcomes, this is also evidenced in the result of paired t test that said that the RME approach has an effect on student learning outcomes, which is shown by the value of Sig. <0.05.

CHAPTER V

DISCUSSION OF RESEARCH RESULTS

1. Application Of Realistic Mathematics Education (RME) Approach In Learning Mathematics Grade IV In The SDN Percobaan 1 Malang

Learning is an activity that occurs between the teacher and students discuss a matter. Various means have been used in the world of education to achieve the nation's next generation of intelligent and knowledgeable. Good learning is learning that can enable students, by providing problem then evaluate. In addition, understanding the learning material is no less important that should take precedence. This can be achieved with a maximum when the appropriate approach to learning. Learning by applying an approach Realistic Mathematics Education (RME) is the learning process that begins by providing a contextual and realistic problem, contextual meaning is related to the environment of students and realistic means real in accordance with reality and facts of the case. On the application of the approach to Realistic Mathematics Education (RME) researchers prepare a contextual problem is then given to the students as the initial learning. These problems shaped the story problem requires reasoning in the settlement. Because the approach to Realistic Mathematics Education (RME) has never been applied in class IV SDN Percobaan 1 Malang so that students are a bit confused because it must work the problem first, without any explanation of the materials associated with the problem. Students working on the matter with the guidance and

direction of the researchers who act as teachers. Researchers guide the students to solve problems together.

Learning to use the approach to Realistic Mathematics Education (RME) performed during the 2x35 hours over 4 x the meeting to the material factor the largest Fellowship (FPB) and multiples of smallest Guild (KPK). At the first meeting, learning Realistic Mathematics Education (RME) less get a good response because of the confused students must complete a reserved in advance using the realistic way without using the formula Math. The purpose of the settlement of this issue, students can understand and draw conclusions into formal mathematics that is resolving problems with formulas that have been obtained. In other words, the purpose of realistic mathematical pembelajaran that is determining the formula in mathematics or mathematical way, so students do not need to memorize mathematical formulas but figuring out the formula from which, by means of the learning It would be very meaningful and memorable for students as well as students are able to translate real situations into math.

The application of the approach to Realistic Mathematics Education (RME) in this research very focused to students. This means that the researchers who act as a teacher only as facilitators who facilitate students to success in learning. Researchers prepare a media learning i.e. dakon mathematics (Dakota). The goal of the researchers making media i.e. Dakota so that students can learn while playing, because the very skills Dakota media Division and multiplication that is much needed to understanding the concept

of the greatest Alliance factors (FPB) and multiples of fellowship the smallest (KPK). By using a very enthusiastic student Dakota media in learning and feel challenged to solve problems by using the medium of Dakota. Medium Dakota helps students to understand the concept of the greatest Alliance factors (FPB) and multiples of smallest Guild (KPK) correctly. Learning such material with a mathematical approach realistic can make the students understand the concept of factor, the factor of communion and Fellowship of the largest factor (FPB) and multiples, multiples of communion and Fellowship of the smallest multiples (KPK).

Approach realistic mathematic education (RME) is applied in accordance with the approach of the indicator that is contextually learning and constructivisme, that students can learn from the problems that exist in the environment and built into a knowledge, in applying the approach of RME in class IV SDN Percobaan 1 Malang getting good responses from students, students are very enthusiastic and active during the learning process. All students follow and listen to the direction of the researchers so that learning runs smoothly.

2. Student's Achievement Of 4th Grade In The SDN Percobaan 1 Malang

The results of learning is a change in behavior due to the existence of special training.⁶³ The results of the study can be measured through 3 aspects: cognitive, affective and psychomotor. The embodiment of the results of the study can be either oral or problem solving, writing skills and problem

⁶³ Syah, Muhibbin, *Psikologi Pendidikan* (Bandung: PT Reamaja Rosdakarya, 2009), p.88

solving that can be measured using a standard test.⁶⁴ The intended behaviour Changes in research is the result of pre-test prior to the implementation of learning and the results of the post-test students after the implementation of learning. Learning outcomes measured in this study is the result of cognitive learning. The results of the study in the study measured using test question.

Data acquisition value of student learning outcomes i.e. pre test and post test analysis of chapter IV on the class before being given treatment obtained average value of 41.0 with details of 0 students who hadn't yet or the value meets the KKM, results pre-test shows there is no student who has been completed. In the class that have not been build treatment obtained the highest value that is 70 and the lowest value, namely 10. While on a class that has already given the treatment gained an average rating of 69.0 with details of 24 students comprehensively study or student values meet the KKM and 36 students hadn't. In the class who have been given the highest rating obtained treatment that is 100 and the lowest value is 20. If presented, then the class has not been given the treatment there is 0% in the category of completely. On a class that has already given the treatment there is 40% of students who complete or fulfill the KKM and 60% of students who have not or do not meet the KKM. From the acquisition of data in the classroom before and after being given treatment there is an increase in the results of the study that is as much as 28.0 obtained from selilish the average results of the pretest and the average results of posttest i.e. 69,0-41.0 was 28.0.

⁶⁴ Syah, Muhibbin, *Psikologi Pendidikan* (Bandung: PT Reamaja Rosdakarya, 2009), p.80

3. Influence Of Realistic Mathematics Education (RME) Approach to Learning Outcomes Grade IV In The Subject Of Mathematics SDN Percobaan 1 Malang

A hypothesis test results described in chapter IV obtained an average score of pretest i.e. 41,000 and an average value of posttest i.e. 69,000, so before learning approach Realistics Mathematics Education (RME) and after learning to use the Realistics the Mathematics Education (RME) there is a difference in the results of learning. The difference shows the increase in the results of the study. In addition to experiencing the results of learning, there are increment correlation between before and after the application of the approach of the Realistics the Mathematics Education (RME) as evidenced in the table correlations that indicate that the value of Sig. < namely $0.002 < 0.05$, H_0 is rejected , then there is a significant correlation.

Test results-t the dependent samples test retrieved Sig. i.e. $0.000 < 0.05$, and so can be said of H_0 is rejected, then it can be said to approach Realistics Mathematics Education (RME) give influence on the result of learning math grade IV in Experiment 1 the hapless SDN. Although the results of student learning has increased and there is a correlation between the before and after of learning approach with Realistics Mathematics Education (RME) there is a significant correlation, but it does not show There are significant effects, because the value of Sig in test t 0.000 obtained then is said to be very influential. According to Rev. Widhiarso that rules test-t "Sig. then there are differences on the extent of sig Sig: 5%, then there are

differences on the extent of 1%, and Sig. then there is no difference ".⁶⁵ In accordance with the rules of the test t, t test results indicate the number smaller than $0.000 < 0.05$ then it can be said to be influential. So, there is an influence on the approach to realistic mathematics education towards the learning outcomes grade IV in the subject of mathematics SDN 1 Percobaan 1 Malang.

The results of this study in accordance with the opinion of the Fruedenthal that approach realistic mathematic education (RME) is a form of human activity, which means that a human activity capable of forming activities together in developing mathematical concepts.⁶⁶ With activity build mathematical concepts, students are able to understand and solve mathematical problems, indicated by the results of the study are increasing. One factor the results of learning i.e. learning approaches which include strategies and methods used.⁶⁷ This research Proven says by doing test theory Approach realistic mathematic education (RME) can improve the results of learning math.

The results of the study are influenced by several factors such as i.e. internal factors, external factors and approaches to learning.⁶⁸ In this research focus towards learning approaches factor. The theory of the test has been carried out in the study that the factors affecting learning outcomes approach.

⁶⁵ Widhiarso Wahyu, *Uji Hipotesis Komparatif* (http://widhiarso.staff.ugm.ac.id/files/membaca_t-tes.pdf diakses pada tanggal 21 maret 2018 pukul 12.25)

⁶⁶ Wijaya Ariyadi, *Pendidikan Realistic Matematika* (Yogyakarta: Graha Ilmu, 2012), hlm.20

⁶⁷ Syah Muhibbin, *Psikologi Pendidikan* (Bandung: PT Remaja Rosdakarya, 2009), hal.129

⁶⁸ Syah Muhibbin, *Psikologi Pendidikan* (Bandung: PT Remaja Rosdakarya, 2009), hal.129

the results of the study in this research proven learning approach that is influenced by the realistic mathematics education (RME).

There is a possibility that the results of the study are not only influenced by the approach of learning i.e. approach realistic mathematics education (RME), but there are also other factors. In applying the approach realistic mathematics education (RME) during the study, the researchers found insufficient and efficiently in its application with a number of factors including the following:

1. first: researchers Act as a less experienced teachers in using these approaches. Because the researchers assumed that was as good as any approach to learning but in the application of the maximum, will not lose with the usual approach but the application to the maximum.
2. Second: the ability of the students in remembering and understanding the learning of RME is low. It is visible when the students working on the question of the posttest, there are some students who've forgotten, it was pointed out that not all students experiencing learning results increment.
3. Third: in applying the approach of RME, there are interludes or use of other learning approaches. Since learning of RME is only done every once in a week in a month more. And four: students are not accustomed to using a learning approach to RME.

On the basis of exposure data and research results indicate that the influence of approach realistic mathematics, education (RME) can improve result of learning.

According to Sutopo Strong in research that has been done conclude the average results of learning math students with learning activities application of Realistic Mathematics Education on the material space better than waking up on the average of the results of the study mathematics students with learning activities application conventionally. These results reinforce the results of the research that's been done before showing that application of RME is effective against certain material on mathematical subjects, one of which material wake space.⁶⁹

It also reinforced also in research that addresses Ginanjar Dimas the same thing which is about an approach Realistic Mathematic Education (RME) concluded that the results of learning math grade V through Learning Math in realistic experience increased. Learning cycles I and II, teachers use the contextual issues relating to material to start learning, students using props that come from the environment around students, discuss the results of the use of props, find a concept based on the results of the discussion.⁷⁰

In accordance with the results of several previous studies, it can be concluded that a realistic mathematical approach can improve student learning outcomes. Realistic mathematical approach uses contextual problems related to mathematics subject matter, so students can understand mathematical material easily. This is also evidenced in the results of the

⁶⁹ Kuart Sutopo, "Keefektifan Pendekatan Realistic Mathematic Education Terhadap Aktivitas dan Hasil Belajar Siswa Kelas V Pada Materi Bangun Ruang di SDN 2 Tinggarjaya Jatilawang Banyumas", Skripsi, Fakultas Ilmu Pendidikan Universitas Negeri Semarang, 2012, p.79

⁷⁰ Ginanjar, Dimas, "Peningkatan Hasil Belajar Matematika melalui Pembelajaran Matematika Realistik pada Siswa Kelas V SDN Ngluwar 1 Kecamatan Ngluwar Magelang", Skripsi, Fakultas Ilmu Pendidikan Universitas Negeri Yogyakarta, 2017, p.85

analysis of student answers on the matter of pretest and posttest which shows that on FPB and KPK materials with 10 questions of each material as many as 5 questions, each student progressed by answering the question correctly, which is indicated by the percentage of correct answers experienced increase.



CHAPTER VI

CLOSING

A. Conclusion

Based on the research results obtained on the influence the approach to realistic mathematics education (RME) against the results of learning math grade IV, the conclusion that can be drawn:

1. Approach realistic mathematic education (RME) is applied in accordance with the approach of the indicator that is contextually learning and konstruktivisme, that students can learn from the problems that exist in the environment and built into a knowledge, in applying the approach of RME in class IV SDN Percobaan 1 Malang getting good responses from students, students are very enthusiastic and active during the learning process. All students follow and listen to the direction of the researchers so that learning runs smoothly.
2. There is a significant difference between the prior and after the use of Math in realistic Approach (PMR) against the results studied mathematics at grade IV semester even in the SDN Percobaan 1 Malang year lesson 2017/2018. This indicated an average value of posttest larger from can value pretest i.e. $69,000 > 41,000$, Thus it can be concluded that the existence of the learning results of the increment.
3. The average value is larger than the pretest posttest and refer the existence of the increment, but it does not indicate the existence of significant influence. It was apparent from the results of the analysis of the test

sample paired with t-value Sig. smaller i.e. $0.000 < 0.05$ degrees of freedom with 0.05, means there is an influence on the approach to realistic mathematics education (RME) against the student learning outcomes grade IV in SDN Percobaan 1 Malang, the influence is very low and not significant.

B. Suggestion

The suggestions can be submitted based on the research that has been done is as follows:

- 1) The results of this research menunjukkan that the application of the approach to Realistic Mathematic Education (RME) in mathematical learning positive effect but its influence is very low against the achievement of learning students, therefore, researchers hope in addition to an already great RME approach expected of teachers are also able to improve his professional competence so that learning outcomes will be more optimally.
- 2) Theoretically this can add to the research of the science knowledge in the field of education, especially in learning mathematics are expected to these studies can be used as consideration in the development of a learning model for improving student learning outcomes.
- 3) This research is expected to help further research, as a consideration to develop methods of learning and media that are suitable for learners so

that the improved performance in the world education continues to run and get better.

- 4) This research can provide experiences for researchers as educators in an effort to increase learning outcomes through the selection of appropriate learning methods.



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PGSD (pengembangan Pembelajaran Matematika SD)



Lampiran 1

ANALISIS PENILAIAN HARIAN MATEMATIKA

No.	NAMA	NILAI
1	ADITYA KEVIN D	56
2	ALZENA ELYSIA SAIFUL	95
3	ANDIKA YAUMIL KUSUMA	56
4	ANGGITA AULIATUZZAHRA	56
5	ANINDYA AULIA ARIEF	100
6	ANISTASYA KAYLA A	74
7	ATHALLA DARIN RAHARJO	97
8	BAGASDITAMA HAYDAR ADNAN	56
9	BERLIANTINA INDRASARI	87
10	BREGAS BISMAWAN	97
11	DAFFA 'ALIM AL ADZIN	79
12	DEVITA RIFATUS SHOLIKHAH	77
13	FELLA ZALFA SAFWANA	95
14	FERISSIA SHAFI MZ	64
15	GATHAN VIRYASA ALHABBY	56
16	I WAYAN KERTA ATMAJA	41
17	INDI NUR KAMALIYA	90
18	IVAN WAHYU GUSTIANANDA	54
19	IZZAN AFKAR GULTOM	82
20	KAYLA NAJMA ZURAFI P.	95
21	KENNY ADRIAN M,W,	95
22	M. ELANG MAULANA A.	62
23	M. SABIAN DEVA E	49
24	MUHAMAD ARYA F	87
25	MUHAMMAD RIDWAN E	59
26	NABILA AZZAHRA	85
27	NADIAH ARISTA DEWI	87
28	NARYAMA DANISH R	100
29	NELVINA CAHYA NIDYA	62
30	NIKEISHA DEVARA A	95
31	NILNA NAJWA ATHERA	77
32	PAKSI ATHAR KRISTIYADY	30
33	RAFEYFA NAJLA PURNOMO	92
34	RANA HAYYU AZZAHRAH	100
35	RANA WIRDANUGRAHA	97
36	RAYYANUNO SATRIA MR	97
37	RIZKY ARIFUDIN ROFI	30
38	SHINTA MAHARANI KALYNA	100
39	TITANIA ANDREA BUANA PUTRI	95
40	WIDIA RENATA S	100

ANALISIS PENILAIAN HARIAN MATEMATIKA

No.	NAMA	NILAI
1	AHLUNA AISHA DN	90
2	AHMAD ANFA'U B	90
3	ALMIRA RIZKIA RUSAVIANA	95
4	AMIRA CIATA A	85
5	ANINDYA NAJLA Q	95
6	ANNA ALTHAFUNNISA	65
7	ARDAFFA MAULANA ARIF	70
8	ARYALLA NINDYA M	70
9	AULIA AKBAR	85
10	AZ ZAHRA SALSABILA	55
11	BAGAS ALVARO RAMADHAN	65
12	BAGAS ARISTIANTO	60
13	BELINDA ARISTI DAMAYANTI	70
14	CAHYA NAURA NASIFAH	85
15	CALISTA INDIRA G	80
16	CHAYYIRA FAHIMA R.P	85
17	CLARISSA PUTRI P	90
18	DARWIN KAYSA BAHRI	75
19	DIMITRI RADITYO A.M	75
20	FAATIKAH AL BARO'AH	75
21	FARELL ANDIKA B	80
22	FATHAN ADITYA FEBRIANANDA	80
23	FATIMAH NUR KHASANA	85
24	FLADINI OCTA NURHADI	85
25	GAVRA HANDARU K	45
26	LAURA SHARREN A	75
27	MOH ALTAF NADHIF AR-ROZY	80
28	MUHAMMAD FATIH MECCA AKBARRIANSYA	80
29	MUHAMMAD HILMI KHALID RAHMATAN	75
30	NASWA ZAFIA SALSABILA	65
31	NAURISYA ASRI ANINDRI	75
32	NAYLAS SHOFWA	95
33	SALWA NAURA	30
34	SMARA ATTAYA GALANG KINASIH	80
35	TSALISIA RIHCHA FIRDAUSYA	60
36	VARELL NADHIF SUSETYAWAN	85
37	VITO ABISALI A	80
38	WIDJI LESTARI	65
39	ZAHRAH NADHIRAH ATHIRAH	95
40	ZULFIQAR KAYZA RAKITA DEWA	90

Lampiran 2

RENCANA PELAKSANAAN PEMBELAJARAN

Nama Sekolah	: SDN PERCOBAAN 1 Malang
Mata Pelajaran	: Matematika
Kelas/Semester	: IV/II
Materi Pokok	: Faktor Bilangan dan Faktor Persekutuan
Alokasi Waktu	: 2 x 35 menit (1x Pertemuan)

A. Kompetensi Inti

KI 1 : Menerima, menjalankan dan menghargai ajaran agama yang dianutnya.

KI 2 : Memiliki perilaku jujur, disiplin, tanggung jawab, santun, peduli, dan percaya diri dalam berinteraksi dengan keluarga, teman, guru, dan tetangganya.

KI 3 : Memahami pengetahuan faktual dengan cara mengamati (mendengar, melihat, membaca dan menanya) dan menanya berdasarkan rasa ingin tahu tentang dirinya, makhluk ciptaan Tuhan dan kegiatannya, dan benda-benda yang dijumpainya di rumah, sekolah, dan tempat bermain.

KI 4 : Menyajikan pengetahuan faktual dalam bahasa yang jelas, sistematis, dan logis, dalam karya yang estetis, dalam gerakan yang mencerminkan anak sehat, dan dalam tindakan yang mencerminkan perilaku anak beriman dan berakhlak mulia.

B. Kompetensi Dasar

3.6 Menjelaskan dan menentukan faktor persekutuan, faktor persekutuan terbesar (FPB), kelipatan persekutuan, kelipatan persekutuan terkecil (KPK) dari dua bilangan berkaitan dengan kehidupan sehari-hari

4.6 Menyelesaikan masalah yang berkaitan dengan faktor persekutuan, faktor persekutuan terbesar (FPB), kelipatan persekutuan terbesar (KPK) dari dua bilangan berkaitan dengan kehidupan sehari-hari

C. Indikator

3.6.1 Memahami konsep faktor bilangan

3.6.2 Menjelaskan dan menentukan faktor bilangan

3.6.3 Menjelaskan dan menentukan faktor persekutuan 2 bilangan

3.6.4 Menentukan dan menuliskan faktor persekutuan 3 bilangan

4.6.1 Menyelesaikan soal faktor persekutuan

D. Tujuan Pembelajaran

3.6.1 Setelah memahami masalah dan melakukan kegiatan membagi dengan media dakon matematika, siswa mampu memahami dengan menjelaskan konsep faktor suatu bilangan dengan benar.

3.6.2 Setelah melakukan kegiatan membagi dengan media dakon, siswa dapat Menjelaskan dan menentukan hasil faktor bilangan dengan benar.

3.6.3 Setelah memahami masalah dengan bantuan dari salah satu siswa yang melakukan kegiatan membagi menggunakan media bola kepada semua temanya, siswa mampu menjelaskan dan menentukan faktor persekutuan 2 bilangan dengan benar.

3.6.4 Setelah memahami masalah dengan bantuan dari salah satu siswa yang melakukan kegiatan membagi menggunakan media dakon kepada semua temanya, siswa mampu menjelaskan dan menentukan faktor persekutuan 3 bilangan dengan benar.

4.6.1 Setelah memahami kegiatan membagi dengan media dakon matematika, siswa mampu menyelesaikan faktor persekutuan dengan matematika formal.

D. Materi Pembelajaran

Faktor Bilangan dan FaktorPersekutuan

Faktor bilangan adalah bilangan-bilangan yang dapat membagi habis bilangan tertentu.

Misalnya faktor bilangan dari 12 adalah

	12
1	12
2	6
3	4

Faktor dari 12 adalah 1,2,3,4,6,dan 12

Faktor persekutuan dua bilangan adalah faktor bilangan yang **sama** dari dua bilangan.

Misalkan faktor dari 12 dan 30 yaitu

Faktor dari 12

	12
1	12
2	6

3	4
---	---

Faktor dari 12 adalah 1,2,3,4,6 dan 12

Faktor 30 yaitu

30	
1	30
2	15
3	10
5	6

Faktor dari 30 adalah 1,2,3,5,6,10,15 dan 30

Jadi faktor yang sama dari bilangan 12 dan 30 adalah 1,2,3 dan 6

E. Metode Pembelajaran

1. Pendekatan : Pendidikan Matematika Realistik Indonesia (PMRI)
2. Metode : Ceramah, Diskusi/problem solving, Presentasi dan Tanya Jawab

F. Media/Alat/Sumber Pembelajaran

1. Suparmin, dkk. 2013. *MATEMATIKA untuk SD/MI Kelas IV Pendekatan Saintifik Kontekstual*. Surakarta: MediaTama.
2. Surjana, Agus. 2011. "*Pembelajaran Faktor Persekutuan Terbesar dan Kelipatan Persekutuan Terkecil di SD*", Modul Matematika SD Program Bermutu, Yogyakarta : Pusat Pengembangan dan Pemberdayaan Pendidik dan Tenaga Kependidikan Matematika
3. Dakon matematika

G. Langkah-langkah Pembelajaran

Kegiatan	Uraian Kegiatan	Alokasi Waktu
Kegiatan Awal	<ul style="list-style-type: none"> ▪ Guru membuka pelajaran dengan menyapa siswa (absen) dan menanya kabar mereka ▪ Guru melakukan apresepasi dengan memberikan pertanyaan motivasi sebagai awal komunikasi guru sebelum pembelajaran inti dimulai. ▪ Guru menyampaikan KD/Indikator/tujuan pembelajaran yang diharapkan ▪ Guru memberikan informasi seputar materi Faktor bilangan 	15 menit
Kegiatan Inti	<ul style="list-style-type: none"> ▪ Guru mengajukan permasalahan 	45 menit

	<p>kontekstual yang berkaitan dengan materi Faktor bilangan (metode ceramah)</p> <ul style="list-style-type: none"> ▪ Guru membentuk beberapa kelompok dan memberikan 18 bola dakon untuk membantu menyelesaikan permasalahan tersebut (metode diskusi) (memahami konsep faktor) ▪ Guru meminta bantuan kepada salah satu siswa untuk membagi 8 dan 12 kepada teman di kelas dengan media dakon (memahami konsep faktor persekutuan) ▪ Siswa menyelesaikan permasalahan tersebut dengan bimbingan dan arahan dari guru. ▪ Setelah selesai berdiskusi masing-masing kelompok mempresentasikan hasil diskusinya. ▪ Guru mengamati jalannya diskusi dan mengarahkan siswa untuk membuat kesimpulan bersama mengenai materi yang dipelajari. 	
Kegiatan Akhir	<ul style="list-style-type: none"> ▪ Guru memberikan soal evaluasi dan mengoreksi bersama dengan murid ▪ Guru memberikan tindak lanjut serta memotivasi siswa agar lebih semangat belajar dan pembelajaran ditutup. 	10 menit

H. Penilaian Hasil Belajar

Aspek Yang Dinilai	Jenis Penilaian	Bentuk Penilaian	Contoh Instrumen	Pembahasan Soal Instrumen
Kognitif	Tes Tulis	Isian	<ol style="list-style-type: none"> 1. Ibu Ela memiliki 120 krayon dan 30 potongan kertas untuk diberikan kepada siswa. Berapa jumlah terbesar siswa yang mendapat bagian krayon dan kertas? 2. Bimo, Andre, dan Fajar membeli 	<ol style="list-style-type: none"> 1. Faktorisasi Prima dari 120 adalah $120 = 2^3 \times 3 \times 5$ Faktorisasi Prima dari 30 adalah $30 = 2 \times 3 \times 5$ FPB dari 30 dan 120 adalah $2 \times 3 \times 5 = 30$ Jadi, jumlah terbesar siswa yang mendapatkan krayon dan potongan kertas

			<p>beberapa bungkus permen lolipop dan banyak permen tiap bungkus sama. Setelah bungkusnya dibuka, ternyata Bimo mempunyai 60 permen, Andre 40 permen, dan Fajar 48 permen. Berapa permen terbanyak di setiap bungkus. Berapa bungkus permen yang dibeli masing-masing orang?</p>	<p>adalah 30 siswa.</p> <p>2. Faktorisasi Prima dari 60 adalah $60 = 2^2 \times 3 \times 5$ Faktorisasi Prima dari 40 adalah $40 = 2^3 \times 5$ Faktorisasi Prima dari 48 adalah $48 = 2^4 \times 3$ FPB dari 60, 40 dan 48 adalah $2^2 = 4$ Banyak bungkus yang dibeli: Bimo $= 60 \div 4 = 15$ Andre $= 40 \div 4 = 10$ Fajar $= 48 \div 4 = 12$ Jadi, jumlah permen terbanyak di setiap bungkus adalah 4 dan bungkus yang dibeli masing-masing adalah 15,10 dan 12.</p>
Afektif	Non tulis	Observasi/ catatan	Kejujuran siswa dalam mengerjakan soal	<p>1. Baik Sekali (SB) jumlah skor 4 dengan kriteria sebagai berikut:</p> <ol style="list-style-type: none"> 1) Jawaban yang ditulis tidak sama dengan teman 2) Tidak bertanya/diskusi dalam mengerjakan soal 3) Tidak menjawab pertanyaan dari teman 4) Mengerjakan sendiri tanpa tolah-toleh kepada teman

				<ol style="list-style-type: none"> 2. Baik (B) jumlah skor 3 dengan memenuhi 2 kriteria yang ada di no.1 3. Cukup (C) jumlah skor 2 dengan memenuhi 1 kriteria yang ada di no.1 4. Perlu Bimbingan (PB) tidak dapat memenuhi semua kriteria yang ada di no.1 dan tidak mendapat skor.
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**Mengetahui,
Dosen Validasi,**

**Malang, 19 Januari 2018
Pengajar,**

**Dr. Marnayati, M.PMat
NIP.197710262003122003**

**Nikmatus Sholikhah
NIP. 14140102**



RENCANA PELAKSANAAN PEMBELAJARAN

Nama Sekolah	: SDN PERCOBAAN 1 Malang
Mata Pelajaran	: Matematika
Kelas/Semester	: IV/II
Materi Pokok	: Faktor Persekutuan Terbesar (FPB)
Alokasi Waktu	: 2 x 35 menit (1x Pertemuan)

A. Kompetensi Inti

- KI 1 : Menerima, menjalankan dan menghargai ajaran agama yang dianutnya.
- KI 2 : Memiliki perilaku jujur, disiplin, tanggung jawab, santun, peduli, dan percaya diri dalam berinteraksi dengan keluarga, teman, guru, dan tetangganya.
- KI 3 : Memahami pengetahuan faktual dengan cara mengamati (mendengar, melihat, membaca dan menanya) dan menanya berdasarkan rasa ingin tahu tentang dirinya, makhluk ciptaan Tuhan dan kegiatannya, dan benda-benda yang dijumpainya di rumah, sekolah, dan tempat bermain.
- KI 4 : Menyajikan pengetahuan faktual dalam bahasa yang jelas, sistematis, dan logis, dalam karya yang estetis, dalam gerakan yang mencerminkan anak sehat, dan dalam tindakan yang mencerminkan perilaku anak beriman dan berakhlak mulia.

B. Kompetensi Dasar

- 3.6 Menjelaskan dan menentukan faktor persekutuan, faktor persekutuan terbesar (FPB), kelipatan persekutuan, kelipatan persekutuan terkecil (KPK) dari dua bilangan berkaitan dengan kehidupan sehari-hari
- 4.6 Menyelesaikan masalah yang berkaitan dengan faktor persekutuan, faktor persekutuan terbesar (FPB), kelipatan persekutuan terbesar (KPK) dari dua bilangan berkaitan dengan kehidupan sehari-hari

C. Indikator

- 3.6.1 Memahami konsep FPB
- 3.6.2 Menentukan dan menuliskan FPB 2 bilangan
- 3.6.3 Menentukan dan menentukan FPB 3 bilangan

4.6.1 Memecahkan masalah dalam kehidupan sehari-hari yang berkaitan dengan FPB dengan berbagai cara

D. Tujuan Pembelajaran

3.6.1 Setelah melakukan kegiatan permainan dakon, siswa dapat menjelaskan FPB dakon secara lisan dengan benar

3.6.2 Setelah memahami permasalahan yang sama dan mengamati permainan dakon, siswa mampu menentukan dan menuliskan FPB 2 bilangan dengan benar.

3.6.3 Setelah memahami permasalahan yang berbeda dan mengamati permainan dakon, siswa mampu menjelaskan dan menentukan FPB 3 bilangan dengan benar.

4.6.1 Setelah menyimak dan memahami cara mencari FPB, siswa mampu memecahkan masalah dengan cepat dan benar.

D. Materi Pembelajaran

Faktor Persekutuan Terbesar (FPB)

Faktor adalah pembagi dari suatu bilangan, yaitu bilangan yang membagi habis bilangan lain. Sedangkan, faktor persekutuan dua bilangan adalah bilangan-bilangan yang merupakan faktor dari dua bilangan tersebut.

FPB dari dua bilangan adalah faktor persekutuan bilangan-bilangan tersebut yang nilainya paling besar atau bilangan terbesar yang habis membagi kedua bilangan tersebut.

Cara mencari FPB ada 2 cara, yaitu:

1. Menggunakan Cara Sederhana
2. Menggunakan Pohon Faktor

Cara Menentukan FPB:

1. Menggunakan Cara Sederhana

Dengan menggunakan tabel faktorisasi

2. Menggunakan Pohon Faktor

- Tuliskan bilangan itu dalam bentuk perkalian faktor prima (faktorisasi).
- Ambil faktor yang sama dari bilangan-bilangan itu.
- Jika faktor yang sama dari setiap bilangan, tetapi banyaknya berbeda, ambil *faktor yang sedikit*.

Contoh:

Tentukan FPB dari 12 dan 30

1. Menggunakan Cara Sederhana

Mencari faktor menggunakan tabel

12	
1	12
2	6
3	4

Faktor dari 12 adalah 1,2,3,4,6 dan 12

30	
1	30
2	15
3	10
5	6

Faktor dari 30 adalah 1,2,3,5,6,10,15 dan 30

Jadi, **faktor** yang **sama** dari kedua bilangan 12 dan 30 yang mempunyai nilai yang **paling besar** adalah 6.

2. Menggunakan Pohon Faktor

Pohon faktor dari 12 dan 30



$$12 = 2^2 \times 3$$

$$30 = 2 \times 3 \times 5$$

Selanjutnya mencari nilai persekutuan dengan pangkat terkecil. Yaitu $3 \times 2 = 6$

Jadi, FPB dari 12 dan 30 adalah 6

3. Metode Tusuk Sate/Tabel Faktor Prima

Langkah-langkah mencari FPB dan KPK dari bilangan 21 dan 35 dengan metode tusuk sate adalah sebagai berikut:

1) Menuliskan bilangan 21 dan 35 pada dua kolom yang berbeda

21	35

- 2) Membagi kedua bilangan dengan suatu bilangan prima, missal bilangan 3. Jika salah satu bilangan tidak habis dibagi 3, maka tetap ditulis bilangan itu sendiri. Tuliskan angka 3 pada sisi kiri kolom

3	21	35
	7	35

- 3) Selanjutnya, membagi kedua bilangan yang didapatkan dari langkah kedua dengan bilangan prima lainnya, misalnya bilangan 7. Karena kedua bilangan habis dibagi 7, maka tuliskan bilangan 7 pada sisi kiri dan kanan kolom.

3	21	35	
7	7	35	7
	1	5	

- 4) Membagi kedua bilangan yang didapatkan dari langkah ketiga dengan bilangan 5. Tuliskan angka 5 pada sisi kiri kolom. Karena pada baris terakhir kedua bilangan menunjukkan angka 1, maka dapat ditentukan KPK dan FPB sebagai berikut.

3	21	35	
7	7	35	7
5	1	5	
	1	1	

$KPK = 3 \times 5 \times 7 = 105$

$FPB = 7$

Dengan demikian metode tusuk sate dapat digunakan untuk mencari FPB dan KPK.

E. Metode Pembelajaran

1. Pendekatan : Pendidikan Matematika Realistik Indonesia (PMRI)
2. Metode : Ceramah, Diskusi/problem solving, Presentasi dan Tanya Jawab

F. Media/Alat/Sumber Pembelajaran

1. Suparmin, dkk. 2013. *MATEMATIKA untuk SD/MI Kelas IV Pendekatan Saintifik Kontekstual*. Surakarta: MediaTama.
2. Surjana, Agus. 2011. "*Pembelajaran Faktor Persekutuan Terbesar dan Kelipatan Persekutuan Terkecil di SD*", Modul Matematika SD Program Bermutu, Yogyakarta : Pusat Pengembangan dan Pemberdayaan Pendidik dan Tenaga Kependidikan Matematika .
3. Dakon matematika

G. Langkah-langkah Pembelajaran

Kegiatan	Uraian Kegiatan	Alokasi Waktu
Kegiatan Awal	<ul style="list-style-type: none"> ▪ Guru membuka pelajaran dengan menyapa siswa (absen) dan menanya kabar mereka ▪ Guru melakukan apresepasi dengan memberikan pertanyaan motivasi sebagai awal kominikasi guru sebelum pembelajaran inti dimulai. ▪ Guru menyampaikan KD/Indikator/tujuan pembelajaran yang diharapkan ▪ Guru memberikan informasi seputar materi FPB 	15 menit
Kegaiatan Inti	<ol style="list-style-type: none"> a. Guru mengajukan masalah permasalahan kontekstual yang diselesaikan menggunakan media dakon matematika b. Guru menjelaskan media dakon matematika c. Guru memberikan tantangan kepada siswa untuk menyelesaikan permasalahan dengan menggunakan media dakon di depan kelas d. Siswa membentuk beberapa kelompok dan menyelesaikan permasalahan menggunakan dakon matematika di depan kelas e. Guru mengajak siswa ke matematika formal 	45 menit
Kegiatan Akhir	<ul style="list-style-type: none"> ▪ Guru memberikan soal evaluasi dan mengoreksi bersama dengan murid 	10 menit

	<ul style="list-style-type: none"> ▪ Guru memberikan tindak lanjut serta memotivasi siswa agar lebih semangat belajar dan pembelajaran ditutup. 	
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H. Penilaian Hasil Belajar

Aspek Yang dinilai	Jenis Penilaian	Bentuk Penilaian	Contoh Instrumen	Pembahasan Contoh Instrumen
Kognitif	Tes Tulis	Isian	<p>1. Pak Anton membagikan 24 buah penghapus dan 36 pensil kepada beberapa anak. Setiap anak mendapat jenis barang yang sama banyak. Jumlah anak paling banyak yang mendapatkan barang tersebut adalah...</p> <p>2. Sasa mempunyai dua lembar kertas dengan ukuran panjang yang sama, namun berbeda ukuran lebarnya. Salah satu kertas lebarnya 36 cm dan lebar kertas lainnya 45 cm. Ia ingin memotong kedua kertas tersebut memanjang dengan ukuran yang sama. Berapakah lebar maksimal kertas</p>	<p>1. Faktorisasi Prima dari 24 adalah $24 = 2^3 \times 3$ Faktorisasi Prima dari 36 adalah $36 = 2^2 \times 3^2$ FPB dari 24 dan 36 adalah $2^2 \times 3 = 12$ Jadi, jumlah anak yang paling banyak mendapatkan barang tersebut adalah 12 anak</p> <p>2. Faktorisasi Prima dari 36 adalah $36 = 2^2 \times 3^2$ Faktorisasi Prima dari 45 adalah $45 = 3^2 \times 5$ FPB dari 36 dan 45 adalah $3^2 = 9$ Jadi, lebar maksimal kertas yang akan dipotong adalah 9 lembar.</p>

			yang akan dipotong sasa	
Afektif	Non tulis	Observasi/ catatan	Kejujuran siswa dalam mengerjakan soal	<ol style="list-style-type: none"> 1. Baik Sekali (SB) jumlah skor 4 dengan kriteria sebagai berikut: <ol style="list-style-type: none"> 1) Jawaban yang ditulis tidak sama dengan teman 2) Tidak bertanya/diskusi dalam mengerjakan soal 3) Menjawab pertanyaan dari teman 4) Mengerjakan sendiri tanpa tolah-toleh kepada teman 2. Baik (B) jumlah skor 3 dengan memenuhi 2 kriteria yang ada di no.1 3. Cukup (C) jumlah skor 2 dengan memenuhi 1 kriteria yang ada di no.1 4. Perlu Bimbingan (PB) tidak dapat memenuhi semua kriteria yang ada di no.1 dan tidak mendapat skor.

**Mengetahui,
Dosen Validasi,**

**Malang, 19 Januari 2018
Pengajar,**

**Dr. Marnayati, M.PMat
NIP.197710262003122003**

**Nikmatus Sholikhah
NIP. 14140102**

RENCANA PELAKSANAAN PEMBELAJARAN

Nama Sekolah	: SDN PERCOBAAN 1 Malang
Mata Pelajaran	: Matematika
Kelas/Semester	: IV/II
Materi Pokok	: Kelipatan Bilangan dan Kelipatan Persekutuan
Alokasi Waktu	: 2 x 35 menit (1x Pertemuan)

A. Kompetensi Inti

- KI 1 : Menerima, menjalankan dan menghargai ajaran agama yang dianutnya.
- KI 2 : Memiliki perilaku jujur, disiplin, tanggung jawab, santun, peduli, dan percaya diri dalam berinteraksi dengan keluarga, teman, guru, dan tetangganya.
- KI 3 : Memahami pengetahuan faktual dengan cara mengamati (mendengar, melihat, membaca dan menanya) dan menanya berdasarkan rasa ingin tahu tentang dirinya, makhluk ciptaan Tuhan dan kegiatannya, dan benda-benda yang dijumpainya di rumah, sekolah, dan tempat bermain.
- KI 4 : Menyajikan pengetahuan faktual dalam bahasa yang jelas, sistematis, dan logis, dalam karya yang estetis, dalam gerakan yang mencerminkan anak sehat, dan dalam tindakan yang mencerminkan perilaku anak beriman dan berakhlak mulia.

B. Kompetensi Dasar

- 3.6 Menjelaskan dan menentukan faktor persekutuan, faktor persekutuan terbesar (FPB), kelipatan persekutuan, kelipatan persekutuan terkecil (KPK) dari dua bilangan berkaitan dengan kehidupan sehari-hari
- 4.6 Menyelesaikan masalah yang berkaitan dengan faktor persekutuan, faktor persekutuan terbesar (FPB), kelipatan persekutuan terbesar (KPK) dari dua bilangan berkaitan dengan kehidupan sehari-hari

C. Indikator

- 3.6.1 Memahami konsep kelipatan suatu bilangan
- 3.6.2 Menentukan dan menuliskan kelipatan suatu bilangan
- 3.6.3 Menentukan dan menuliskan kelipatan persekutuan 2 bilangan

3.6.4 Menentukan dan menuliskan kelipatan persekutuan 3 bilangan

4.6.1 Menyelesaikan soal kelipatan persekutuan

D. Tujuan Pembelajaran

3.6.1 Setelah memahami masalah dan melakukan kegiatan perkalian dengan media dakon matematika, siswa mampu memahami dengan menjelaskan konsep faktor suatu bilangan dengan benar.

3.6.2 Setelah melakukan kegiatan perkalian dengan media dakon, siswa dapat menentukan dan menuliskan hasil kelipatan bilangan dengan benar.

3.6.3 Setelah memahami masalah dengan bantuan dari salah satu siswa yang melakukan kegiatan membagi menggunakan media dakon kepada semua temanya, siswa mampu menjelaskan dan menentukan faktor persekutuan 2 bilangan dengan benar.

3.6.4 Setelah memahami masalah dengan bantuan dari salah satu siswa yang melakukan kegiatan membagi menggunakan media dakon kepada semua temanya, siswa mampu menjelaskan dan menentukan faktor persekutuan 3 bilangan dengan benar.

4.6.1 Setelah memahami kegiatan membagi dengan media dakon matematika, siswa mampu menyelesaikan faktor persekutuan dengan matematika formal.

D. Materi Pembelajaran

Kelipatan Bilangan dan Kelipatan Persekutuan

Kelipatan suatu bilangan adalah bilangan-bilangan hasil penjumlahan dengan bilangan yang sama secara terus-menerus atau hasil perkalian dengan bilangan tersebut dengan bilangan asli.

Kelipatan persekutuan dari dua bilangan adalah kelipatan-kelipatan dari kedua bilangan tersebut yang bernilai sama.

Cara mencari kelipatan bilangan yaitu:

1. Penjumlahan berulang
2. Perkalian dengan bilangan asli

Contoh:

Tentukan kelipatan dari 12

12	1	2	3	4	5	6
	12	24	36	48	60	72

Jadi, kelipatan dari 12 adalah 12, 24, 36, 48, 60 dan 72

E. Metode Pembelajaran

1. Pendekatan : Pendidikan Matematika Realistik Indonesia (PMRI)
2. Metode : Ceramah, Diskusi/problem solving, Presentasi dan Tanya Jawab

F. Media/Alat/Sumber Pembelajaran

1. Suparmin, dkk. 2013. *MATEMATIKA untuk SD/MI Kelas IV Pendekatan Saintifik Kontekstual*. Surakarta: MediaTama.
2. Surjana, Agus. 2011. "*Pembelajaran Faktor Persekutuan Terbesar dan Kelipatan Persekutuan Terkecil di SD*", Modul Matematika SD Program Bermutu, Yogyakarta : Pusat Pengembangan dan Pemberdayaan Pendidik dan Tenaga Kependidikan Matematika .
3. Dakon matematika

G. Langkah-langkah Pembelajaran

Kegiatan	Uraian Kegiatan	Alokasi Waktu
Kegiatan Awal	<ul style="list-style-type: none"> ▪ Guru membuka pelajaran dengan menyapa siswa (absen) dan menanya kabar mereka ▪ Guru melakukan apresepasi dengan memberikan pertanyaan motivasi sebagai awal komunikasi guru sebelum pembelajaran inti dimulai. ▪ Guru menyampaikan KD/Indikator/tujuan pembelajaran yang diharapkan ▪ Guru memberikan informasi seputar materi KPK 	15 menit
Kegiatan Inti	<ul style="list-style-type: none"> ▪ Guru mengajukan permasalahan kontekstual yang berkaitan dengan materi KPK (metode ceramah) ▪ Guru membentuk beberapa kelompok dan memberikan beberapa bola untuk membantu menyelesaikan permasalahan tersebut (metode diskusi) (memahami konsep kelipatan) ▪ Siswa menyelesaikan permasalahan tersebut dengan bimbingan dan arahan dari guru. ▪ Setelah selesai berdiskusi masing-masing kelompok mempresentasikan hasil diskusinya. ▪ Guru mengamati jalannya diskusi dan 	45 menit

	mengarahkan siswa untuk membuat kesimpulan bersama mengenai materi yang dipelajari.	
Kegiatan Akhir	<ul style="list-style-type: none"> ▪ Guru memberikan soal evaluasi dan mengoreksi bersama dengan murid ▪ Guru memberikan tindak lanjut serta memotivasi siswa agar lebih semangat belajar dan pembelajaran ditutup. 	10 menit

H. Penilaian Hasil Belajar

Aspek Yang dinilai	Jenis Penilaian	Bentuk Penilaian	Contoh Instrumen	Pembahasan Contoh Instrumen
Kognitif	Tes Tulis	Isian	1. Sebuah toko grosir buku tulis memberikan bonus sebuah buku tulis untuk setiap pembelian 4 buah buku tulis atau kelipatannya. Berapa sajakah jumlah buku tulis yang harus dibeli agar mendapatkan bonus?	1. Kelipatan dari 4 adalah $4 = 8, 12, 16, 20, 24$ dst Jadi , jumlah buku tulis yang harus dibeli adalah 8, 12, 16, 20, dan 24
Afektif	Non tulis	Observasi/ catatan	Kejujuran siswa dalam mengerjakan soal	1. Baik Sekali (SB) jumlah skor 4 dengan kriteria sebagai berikut: 1) Jawaban yang ditulis tidak sama dengan teman 2) Tidak bertanya/diskusi dalam mengerjakan soal 3) Tidak menjawab pertanyaan dari teman 4) Mengerjakan

				<p>sendiri tanpa tolah-toleh kepada teman</p> <ol style="list-style-type: none"> 2. Baik (B) jumlah skor 3 dengan memenuhi 2 kriteria yang ada di no.1 3. Cukup (C) jumlah skor 2 dengan memenuhi 1 kriteria yang ada di no.1 4. Perlu Bimbingan (PB) tidak dapat memenuhi semua kriteria yang ada di no.1 dan tidak mendapat skor.
--	--	--	--	--

**Mengetahui,
Dosen Validasi,**

**Malang, 19 Januari 2018
Pengajar,**

**Dr. Marnayati, M.PMat
NIP.197710262003122003**

**Nikmatus Sholikhah
NIP. 14140102**

RENCANA PELAKSANAAN PEMBELAJARAN

Nama Sekolah	: SDN PERCOBAAN 1 Malang
Mata Pelajaran	: Matematika
Kelas/Semester	: IV/II
Materi Pokok	: Kelipatan Persekutuan Terkecil (KPK)
Alokasi Waktu	: 2 x 35 menit (1x Pertemuan)

A. Kompetensi Inti

- KI 1 : Menerima, menjalankan dan menghargai ajaran agama yang dianutnya.
- KI 2 : Memiliki perilaku jujur, disiplin, tanggung jawab, santun, peduli, dan percaya diri dalam berinteraksi dengan keluarga, teman, guru, dan tetangganya.
- KI 3 : Memahami pengetahuan faktual dengan cara mengamati (mendengar, melihat, membaca dan menanya) dan menanya berdasarkan rasa ingin tahu tentang dirinya, makhluk ciptaan Tuhan dan kegiatannya, dan benda-benda yang dijumpainya di rumah, sekolah, dan tempat bermain.
- KI 4 : Menyajikan pengetahuan faktual dalam bahasa yang jelas, sistematis, dan logis, dalam karya yang estetis, dalam gerakan yang mencerminkan anak sehat, dan dalam tindakan yang mencerminkan perilaku anak beriman dan berakhlak mulia.

B. Kompetensi Dasar

- 3.6 Menjelaskan dan menentukan faktor persekutuan, faktor persekutuan terbesar (FPB), kelipatan persekutuan, kelipatan persekutuan terkecil (KPK) dari dua bilangan berkaitan dengan kehidupan sehari-hari
- 4.6 Menyelesaikan masalah yang berkaitan dengan faktor persekutuan, faktor persekutuan terbesar (FPB), kelipatan persekutuan terbesar (KPK) dari dua bilangan berkaitan dengan kehidupan sehari-hari

C. Indikator

- 3.6.1 Memahami konsep KPK
- 3.6.2 Menjelaskan dan menentukan KPK 2 bilangan
- 3.6.3 Menjelaskan dan menentukan KPK 3 bilangan

4.6.1 Memecahkan masalah dalam kehidupan sehari-hari yang berkaitan dengan KPK dengan berbagai cara

D. Tujuan Pembelajaran

- 3.6.1 Setelah memahami permasalahan dan melakukan kegiatan permainan dakon, siswa dapat menjelaskan konsep KPK dakon secara lisan dengan benar
- 3.6.2 Setelah memahami permasalahan yang sama dan mengamati permainan dakon, siswa mampu menjelaskan dan menentukan KPK 2 bilangan dengan benar.
- 3.6.3 Setelah memahami permasalahan yang berbeda dan mengamati permainan dakon, siswa mampu menjelaskan dan menentukan KPK 3 bilangan dengan benar.
- 4.6.1 Setelah menyimak dan memahami cara mencari KPK, siswa mampu memecahkan masalah dengan cepat dan benar.

D. Materi Pembelajaran

Kelipatan Persekutuan Terkecil (KPK)

KPK (Kelipatan Persekutuan Terkecil) adalah kelipatan persekutuan dua bilangan bilangan tersebut yang nilainya paling kecil atau bilangan terkecil yang habis dibagi kedua bilangan tersebut.

Cara mencari KPK ada 2 cara:

1. Menggunakan Cara Sederhana (pemfaktoran)
2. Menggunakan Pohon Faktor

Langkah mencari KPK dengan pohon faktor yaitu:

- Tulislah bilangan-bilangan itu dalam bentuk perkalian faktor prima (faktorisasi).
- Ambil semua faktor, yang sama atau tidak sama, dari bilangan-bilangan itu.
- Jika faktor yang sama dari setiap bilangan, tetapi banyaknya berbeda, ambillah faktor yang paling banyak atau dari pangkat yang terbesar.

Contoh :

Tentukan KPK dari 12 dan 30

1. Menggunakan Cara Sederhana

Mencari kelipatan 12 dengan cara mengalikan dengan bilangan 1,2,3,4,5, ...

12	1	2	3	4	5	6
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	12	24	36	48	60	72
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KPK dari 12 adalah 24, 36, 48, 60 dan 72

Mencari Kelipatan 30 dengan cara mengalikan dengan bilangan 1,2,3,4 dan 5

30	1	2	3	4	5	6
	30	60	90	120	150	180

KPK dari 30 adalah 60, 90, 120, 150, 180

Jadi, **kelipatan** yang **sama** dari bilangan 12 dan 30 yang mempunyai nilai yang **paling kecil** adalah 60.

2. Menggunakan Pohon Faktor

Pohon faktor dari 12 dan 30



$$12 = 2^2 \times 3$$

$$30 = 2 \times 3 \times 5$$

Jadi, nilai persekutuan dengan pangkat terbesar dan menyertakan nilai yang tidak bersekutuan. Yaitu $2^2 \times 3 \times 5 = 60$

Maka, KPK dari 12 dan 30 adalah 60

E. Metode Pembelajaran

1. Pendekatan : Pendidikan Matematika Realistik Indonesia (PMRI)
2. Metode : Ceramah, Diskusi/problem solving, Presentasi dan Tanya Jawab

F. Media/Alat/Sumber Pembelajaran

1. Suparmin, dkk. 2013. *MATEMATIKA untuk SD/MI Kelas IV Pendekatan Saintifik Kontekstual*. Surakarta: MediaTama.
2. Surjana, Agus. 2011. "*Pembelajaran Faktor Persekutuan Terbesar dan Kelipatan Persekutuan Terkecil di SD*", Modul Matematika SD Program Bermutu, Yogyakarta : Pusat Pengembangan dan Pemberdayaan Pendidik dan Tenaga Kependidikan Matematika.
3. Dakon matematika

G. Langkah-langkah Pembelajaran

Kegiatan	Uraian Kegiatan	Alokasi Waktu
Kegiatan Awal	<ul style="list-style-type: none"> ▪ Guru membuka pelajaran dengan menyapa siswa (absen) dan menanya kabar mereka ▪ Guru melakukan aprepsi dengan memberikan pertanyaan motivasi sebagai awal komunikasi guru sebelum pembelajaran inti dimulai. ▪ Guru menyampaikan KD/Indikator/tujuan pembelajaran yang diharapkan ▪ Guru memberikan informasi seputar materi KPK 	15 menit
Kegiatan Inti	<ul style="list-style-type: none"> ▪ Guru mengajukan masalah permasalahan kontekstual yang akan diselesaikan menggunakan media dakon matematika ▪ Guru menjelaskan media dakon matematika dalam penyelesaian permasalahan tersebut ▪ Guru memberikan tantangan kepada siswa untuk menyelesaikan permasalahan dengan menggunakan media dakon di depan kelas ▪ Siswa membentuk beberapa kelompok dan menyelesaikan permasalahan menggunakan dakon matematika di depan kelas ▪ Guru mengajak siswa ke matematika formal 	45 menit
Kegiatan Akhir	<ul style="list-style-type: none"> ▪ Guru memberikan soal evaluasi dan mengoreksi bersama dengan murid ▪ Guru memberikan tindak lanjut serta memotivasi siswa agar lebih semangat belajar dan pembelajaran ditutup. 	10 menit

H. Penilaian Hasil Belajar

Aspek Yang dinilai	Jenis Penilaian	Bentuk Penilaian	Contoh Instrumen	Pembahasan Contoh Instrumen
Kognitif	Tes Tulis	Isian	1. Bel A berbunyi 15 menit sekali. Bel B berbunyi 12	1. Faktorisasi Prima dari 15 adalah $15 = 3 \times 5$ Faktorisasi Prima

			<p>menit sekali. Kedua bel akan berbunyi bersama-sama setiap menit sekali</p> <p>2. Amin mendapat giliran piket membersihkan kelas setiap 4 hari, Andi mendapat giliran piket setiap 6 hari, Pak Budi mendapat giliran ronda setiap 8 hari. Jika mereka ronda bersama-sama pada tanggal 11 Januari 2018, mereka akan ronda bersama-sama untuk kedua kalinya pada tanggal...</p>	<p>dari 12 adalah $12 = 2^2 \times 3$ FPB dari 12 dan 15 adalah 3</p> <p>Jadi, kedua bel akan berbunyi bersama lagi pada 3 menit sekali.</p> <p>2. Kelipatan dari 4 adalah 8, 12, 16, 20, 24, dst</p> <p>Kelipatan dari 6 adalah 12, 18, 24, dst</p> <p>Kelipatan dari 8 adalah 16, 24, 32, dst</p> <p>KPK dari 4, 6, dan 8 adalah 24</p> <p>Jadi, mereka akan ronda bersama lagi 24 hari setelah tanggal 11 Januari 2018 yaitu 4 Februari 2018.</p>
Afektif	Non tulis	Observasi/ catatan	Kejujuran siswa dalam mengerjakan soal	<p>1. Baik Sekali (SB) jumlah skor 4 dengan kriteria sebagai berikut:</p> <ol style="list-style-type: none"> 1) Jawaban yang ditulis tidak sama dengan teman 2) Tidak bertanya/diskusi dalam mengerjakan soal 3) Tidak menjawab pertanyaan dari teman

				<p>4) Mengerjakan sendiri tanpa tolah-toleh kepada teman</p> <p>2. Baik (B) jumlah skor 3 dengan memenuhi 2 kriteria yang ada di no.1</p> <p>3. Cukup (C) jumlah skor 2 dengan memenuhi 1 kriteria yang ada di no.1</p> <p>4. Perlu Bimbingan (PB) tidak dapat memenuhi semua kriteria yang ada di no.1 dan tidak mendapat skor.</p>
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**Mengetahui,
Dosen Validasi,**

**Malang,19 Januari 2018
Pengajar,**

**Dr. Marnayati, M.PMat
NIP.197710262003122003**

**Nikmatus Sholikhah
NIP. 14140102**

Lampiran 3



KEMENTERIAN AGAMA REPUBLIK INDONESIA
UNIVERSITAS ISLAM NEGERI MAULANA MALIK IBRAHIM MALANG
FAKULTAS ILMU TARBIYAH DAN KEGURUAN

Jalan Gajayana 50, Telepon (0341) 552398 Faximile (0341) 552398 Malang

<http://fitk.uin-malang.ac.id>. email :fitk@uin-malang.ac.id

SOAL PRETEST MATEMATIKA
SEMESTER GENAP TAHUN AJARAN 2017/2018
UNTUK SEKOLAH DASAR NEGERI PERCOBAAN 1 MALANG

Tanggal Verifikasi: 16 Januari 2018	Penyusun Soal: Nikmatus Sholikhah	
Revisi dan Review:	Tanggal Penyelesaian Revisi: 19 Januari 2018	Tanggal Validasi: 19 Januari 2018
		Dosen Validasi, Dr. Marnayati, M.P Mat NIP. 197710262003122003

Mata Pelajaran : Matematika

Pokok Bahasan : FPB dan KPK

Kelas /Semester : IV / II

A. BERILAH TANDA SILANG (X) PADA HURUF A, B, C ATAU D PADA JAWABAN YANG BENAR!

1. Ibu membeli 12 kue donat, 16 kue bronis, dan 20 kue bolu. Kue itu akan diletakkan pada piring dengan bagian yang sama. Banyak piring yang diperlukan ibu adalah
a. 10 b. 8 c. 6 d. 4

2. Fahri mempunyai 24 spidol merah dan 36 spidol biru. Spidol itu akan dibagikan kepada setiap anak di panti asuhan, sehingga setiap anak mendapatkan spidol sama banyak. Banyaknya spidol merah dan biru yang diterima setiap anak adalah
 - a. 2 Spidol Merah dan 3 Spidol Biru
 - b. 3 Spidol Merah dan 2 Spidol Biru
 - c. 6 Spidol Merah dan 9 Spidol Biru
 - d. 9 Spidol Merah dan 6 Spidol Biru
3. Samanta mempunyai dua lembar kertas dengan ukuran panjang yang sama, namun berbeda ukuran lebarnya. Salah satu kertas lebarnya 36 cm dan lebar kertas lainnya 45 cm. Ia ingin memotong kedua kertas tersebut memanjang dengan ukuran yang sama. Berapakah lebar maksimal kertas yang akan dipotong Samanta
 - a. 4 lembar
 - b. 5 lembar
 - c. 9 lembar
 - d. 15 lembar
4. Suatu Kota menerima bantuan berupa 63 rak buku, 45 buku bacaan, dan 126 papan tulis dari pemerintah pusat. Bantuan tersebut akan dibagikan kepada beberapa sekolah. Setiap sekolah memperoleh rak buku dan papan tulis sama banyak. Banyak sekolah yang memperoleh bantuan ada
 - a. 21
 - b. 45
 - c. 55
 - d. 63
5. Pak Farid dan Pak Darwis petugas kebersihan di sekolah. Selain itu mereka juga mendapat tugas tambahan piket di sekolah. Pak Farid piket setiap 12 hari sekali dan Pak Darwis setiap 18 hari sekali. Pada hari Sabtu tanggal 14 April 2018 mereka mendapat tugas piket secara bersamaan. Kapan mereka akan mendapat tugas piket secara bersamaan untuk yang kedua
 - a. Selasa, 24 April 2018
 - b. Selasa, 01 Mei 2018
 - c. Jumat, 04 Mei 2018
 - d. Minggu, 20 Mei 2018
6. Truk A berhenti setelah berjalan 150 km. Truk B berhenti setelah berjalan 170 km. Jika kedua truk berangkat dari tempat dan waktu yang sama, pada kilometer berapakah kedua truk itu akan berhenti bersama-sama
 - a. 2.250 km
 - b. 2.500 km
 - c. 2.550 km
 - d. 2.275 km

7. Untuk meraih penghargaan Adipura, jalan-jalan di kota Batu dibuat semakin menarik. Di kiri jalan dipasang bendera tiap 25 meter. Di pembatas jalur tengah jalan dipasang lampu tiap 30 meter. Di kanan jalan terdapat tiang listrik tiap 50 meter. Tiap berapa meter bendera, lampu, dan tiang listrik letaknya sebaris
- a. 50 b. 100 c. 150 d. 250
8. Lampu merah menyala 24 menit sekali, lampu kuning 36 menit sekali, dan lampu hijau menyala 48 menit sekali, ketiga lampu menyala bersamaan pada pukul 10.00. Kedua lampu akan menyala lagi bersamaan untuk kedua kalinya pukul
- a. 12.15 b. 12.20 c. 12.24 d. 12.30
9. Ali bersepeda dari kota Yogyakarta ke Solo dengan kecepatan rata-rata 20 km/jam, berangkat pukul 07.00. Satu jam kemudian Bambang menyusul Ali naik sepeda motor dengan kecepatan 30 km/jam. Pada km berapa dan pada pukul berapa Bambang menyusul Ali
- a. 60 km pada Pukul 10.00 c. 120 km pada Pukul 09.00
b. 90 km pada Pukul 09.30 d. 150 km pada Pukul 08.00
10. Anton berolahraga setiap 8 hari sekali, Deni berolahraga setiap 16 hari sekali, dan Ivan berolahraga setiap 24 hari sekali. Pada tanggal 1 Februari 2018 mereka berolahraga bersama, maka mereka akan berolahraga bersama lagi pada tanggal
- a. 19 Maret 2018 c. 21 Maret 2018
b. 20 Maret 2018 d. 22 Maret 2018

PEMBAHASAN & KUNCI JAWABAN PRE-TEST

1.

$12 = 2^2 \times 3$
 $16 = 2^4$
 $20 = 2^2 \times 5$

FPB dari 12, 16 dan 20 = $2^2 = 4$

Jadi, banyak piring yang diperlukan ibu adalah 4.

5.

$12 = 2^2 \times 3$
 $18 = 2 \times 3^2$

Kpk dari 12 dan 18 = $2^2 \times 3^2 = 36$

Piket secara bersamaan = 14 April 2018

$36 : 7 = 5$ sisa 1 \rightarrow satu hari sesudah sabtu yaitu MINGGU

30 \rightarrow Jumlah hari pada bln. April
 14 \rightarrow Tgl piket bersama

16 \rightarrow sisa hari di bln. April

Tgl piket bersamalagi yaitu :

$$\frac{36}{16} - \dots = 20 \text{ Mei } 2018$$

Jadi, mereka piket bersama pada MINGGU, 20 Mei 2018.

2. spidol Merah spidol Biru

$24 = 2^3 \times 3$
 $36 = 2^2 \times 3^2$

FPB dari 24 dan 36 = $2^2 \times 3 = 12$

spidol Merah = $24 : 12 = 2$

spidol Biru = $36 : 12 = 3$

Jadi, Banyak spidol merah dan biru yang diterima setiap anak adalah 2 dan 3.

6. Truk A Truk B

$150 = 2 \times 3 \times 5^2$
 $170 = 2 \times 5 \times 17$

Kpk dari 150 dan 170 = $2 \times 3 \times 5^2 \times 17 = 2.550$

Jadi, kedua Truk akan berhenti bersama pada 2.550 km.

3.

$36 = 2^2 \times 3^2$
 $45 = 3^2 \times 5$

FPB 36 dan 45 = $3^2 = 9$

Jadi, lebar maksimal kertas yang akan dipotong samanta adalah 9 lembar.

7.

$25 = 5^2$
 $30 = 2 \times 3 \times 5$
 $50 = 2 \times 5^2$

Kpk dari 25, 30 dan 50 = $2 \times 3 \times 5^2 = 150$

Jadi, letak bendera, lampu dan tiang Listrik dalam Sebaris adalah 150.

4.

$63 = 3^2 \times 7$
 $126 = 2 \times 3^2 \times 7$

FPB dari 63 dan 126 = $3^2 \times 7 = 63$

Jadi, banyak sekolah yang memperoleh bantuan ada 63.

8. L. Merah L. Kuning L. Hijau

$24 = 2^3 \times 3$
 $36 = 2^2 \times 3^2$
 $48 = 2^4 \times 3$

KPK dari 24, 36 dan 48 = $2^4 \times 3^2 = 144$

$144 : 60$ (menit) = 2 jam 24 menit.

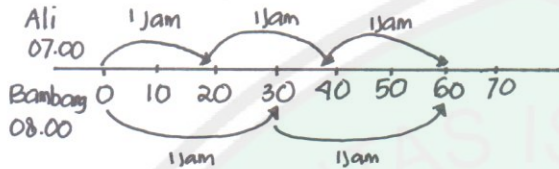
Mereka menyala pertama pada pukul 10.00

Jadi, mereka menyala lagi pada pukul

$10.00 + 2 \text{ jam } 24 \text{ menit} = 12.24$

9. Ali \rightarrow 07.00 \rightarrow 20 km/jam.

Bambang \rightarrow 08.00 \rightarrow 30 km/jam.

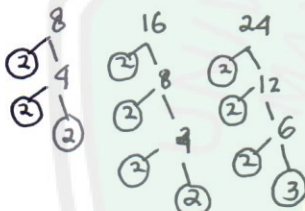


Jadi, Bambang akan menyusul Ali pada

Jarak 60 km/jam pada pukul 10.00

(2 jam setelah pukul 08.00).

10.



$$8 = 2^3 \quad 16 = 2^4 \quad 24 = 2^3 \times 3$$

kpk dari 8, 16 dan 24 = $2^4 \times 3 = 48$

1 Februari 2018 \rightarrow olahraga bersama

$28 - 1 = 27$ hari tersisa di bln. Februari.

48

27

21 \rightarrow hari pada bln selanjutnya yaitu maret.

Jadi, mereka akan berolahraga

bersama lagi pada 21 maret 2018.

Kunci Jawaban Soal Pretest:

1. D
2. A
3. C
4. D
5. D
6. C
7. C
8. C
9. A
10. C





KEMENTERIAN AGAMA REPUBLIK INDONESIA
UNIVERSITAS ISLAM NEGERI MAULANA MALIK IBRAHIM MALANG
FAKULTAS ILMU TARBIYAH DAN KEGURUAN

Jalan Gajayana 50, Telepon (0341) 552398 Faximile (0341) 552398 Malang

<http://fitk.uin-malang.ac.id>. email :fitk@uin-malang.ac.id

SOAL POSTTEST MATEMATIKA
SEMESTER GENAP TAHUN AJARAN 2017/2018
UNTUK SEKOLAH DASAR NEGERI PERCOBAAN 1 MALANG

Tanggal Verifikasi: 27 Februari 2018	Penyusun Soal: Nikmatus Sholikhah	
Revisi dan Review:	Tanggal Penyelesaian Revisi:	Tanggal Validasi:
		Dosen Validasi, Dr. Marnayati, M.P Mat NIP. 197710262003122003

Mata Pelajaran : Matematika
Pokok Bahasan : FPB dan KPK
Kelas /Semester : IV / II

B. BERILAH TANDA SILANG (X) PADA HURUF A, B, C ATAU D PADA JAWABAN YANG BENAR!

1. Bu Feni menyiapkan 18 apel dan 24 salak untuk tamu undangan. Buah-buah tersebut akan diletakkan di atas beberapa piring. Setiap piring memuat apel dan salak sama banyak. Bu Ika harus menyiapkan piring untuk buah-buahan paling banyak....
- a. 2 piring berisi 2 apel dan 4 salak
b. 6 piring berisi 3 apel dan 4 salak
c. 8 piring berisi 4 apel dan 6 salak
d. 12 piring berisi 3 apel dan 6 salak



2. Ninin memiliki 46 permen, 64 coklat, dan 82 roti. Makanan tersebut akan dimasukkan ke dalam plastik yang isinya sama banyak untuk dibagikan kepada teman-temannya. Berapakah jumlah teman Ninin yang mendapatkan makanan tersebut....
- a. 2 b. 8 c. 16 d. 23
3. Kegiatan Diskusi dalam pembelajaran di kelas IV akan diikuti 16 siswa laki-laki dan 24 siswa perempuan. Bu guru akan membentuk kelompok sebanyak-banyaknya dengan jumlah siswa laki-laki dan siswa perempuan dalam setiap kelompok sama banyak. Setiap kelompok Diskusi tersebut terdiri atas ... laki-laki dan ... perempuan.
- a. 2 dan 3 b. 3 dan 2 c. 2 dan 4 d. 4 dan 2
4. Pak Farid mempunyai 30 buku tulis dan 48 pensil yang akan di bagikan kepada beberapa siswa yang berprestasi dengan jumlah buku tulis dan pensil yang sama. Jumlah buku tulis dan pensil yang didapat oleh setiap siswa adalah....
- a. 12 biji b. 13 biji c. 14 biji d. 15 biji
5. Bu Lusia mencatat sejumlah uang untuk biaya studi luar sekolah dari siswa kelas IV, biaya yang tercatat adalah sebagai berikut. Amatilah tabel di bawah ini!

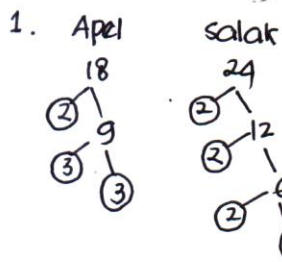
Uang yang dikumpulkan oleh Ibu Lusia	
Senin	240.000
Selasa	180.000
Rabu	120.000

- Setiap siswa membayar dengan jumlah yang sama. Berapakah biaya studi luar sekolah untuk setiap siswa.... rupiah
- a. 20.000 b. 30.000 c. 60.000 d. 80.000
6. Kegiatan Jalan Sehat di Balai Kota Malang diikuti 60 peserta laki-laki dan 90 peserta perempuan. Panitia jalan sehat akan membentuk kelompok sebanyak-banyaknya. Setiap kelompok akan bertemu di titik pertama pada pukul 08.15 dan titik terakhir pada pukul 12.30. Berapa banyak kelompok yang dapat dibentuk? dan berapa lama waktu tempuh Jalan Sehat?
- a. 30 kelompok dan 4 jam 15 menit c. 60 kelompok dan 4 jam 45 menit
b. 45 kelompok dan 4 jam 30 menit d. 90 kelompok dan 5 jam 15 menit

7. Akbar, Fatan dan Vito berlatih basket di tempat yang sama. Akbar berlatih basket setiap 2 hari sekali, Fatan berlatih setiap 3 hari sekali, dan Vito setiap 4 hari sekali. Jika ketiganya berlatih bersama-sama pada hari kamis, mereka akan berlatih bersama lagi pada hari....
- a. Senin b. Selasa c. Rabu d. Kamis
8. Bus jurusan Malang-Surabaya berangkat dari Terminal Arjosari setiap 15 menit. Bus jurusan Malang-Lamongan berangkat dari Terminal Arjosari setiap 18 menit. Jika pukul 09.45 bus jurusan Malang-Surabaya berangkat bersama-sama dari Terminal Arjosari, bus kedua jurusan akan berangkat bersama lagi pukul....
- a. 11.15 b. 11.45 c. 12.15 d. 12.30
9. Sebuah ruangan mempunyai dua mesin pengharum ruangan. Mesin pertama menyemprotkan pengharum ruangan setiap 7 menit sekali, sedangkan mesin kedua setiap 9 menit sekali. Jika keduanya menyemprotkan pengharum ruangan bersama-sama pada pukul 08.30. Kedua mesin tersebut menyemprotkan bersama lagi pada pukul....
- a. 09.30 b. 09.31 c. 09.32 d. 09.33
10. Ibu mencuci 15 sepasang *baju* setiap 6 hari sekali, mencuci 6 *seprai* setiap 15 hari sekali, dan mencuci 4 *gorden* setiap 30 hari sekali. Hari ini, ibu mencuci *baju*, *seprai* dan *gorden*. Berapa banyak *seprai* dan *gorden* yang dicuci oleh ibu? dan pada hari ke berapa Ibu akan mencuci *baju*, *seprai* dan *gorden* bersama-sama lagi?
- a. 9 helai cucian dan hari ke 15 c. 11 helai cucian dan pada hari ke 60
b. 10 helai cucian dan hari ke 30 d. 15 helai cucian dan pada hari ke 75



PEMBAHASAN & KUNCI JAWABAN POST-TEST



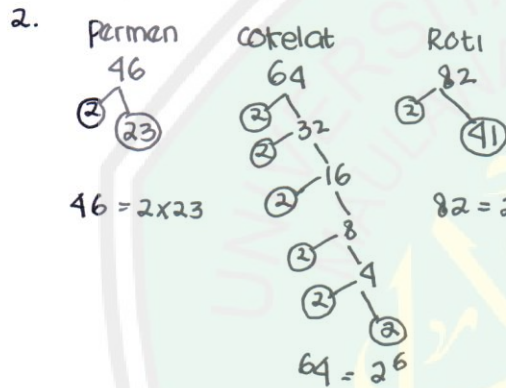
$18 = 2 \times 3^2$ $24 = 2^3 \times 3$

FPB dari 18 dan 24 = $2 \times 3 = 6$

Banyak : Apel $\rightarrow 18 : 6 = 3$

Salak $\rightarrow 24 : 6 = 4$

Jadi, Banyak Apel dan salak adalah 6 piring berisi 3 Apel dan 4 salak.



$46 = 2 \times 23$

$82 = 2 \times 41$

$64 = 2^6$

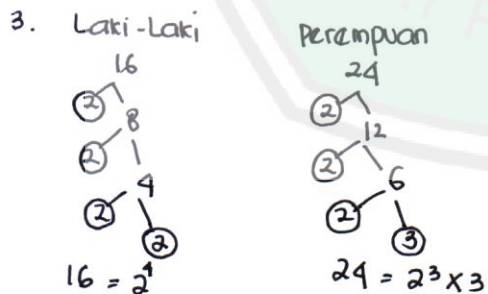
FPB dari 46, 64 dan 82 = 2

Banyak : permen $\rightarrow 46 : 2 = 23$

cokelat $\rightarrow 64 : 2 = 32$

Roti $\rightarrow 82 : 2 = 41$

Jadi, banyak / jumlah teman ninin yang 6. mendapat makanan adalah 2.



$16 = 2^4$

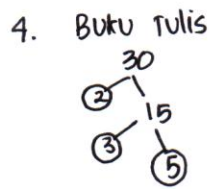
$24 = 2^3 \times 3$

FPB dari 16 dan 24 = $2^3 = 8$

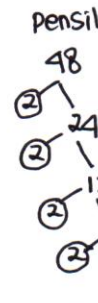
Banyak : Laki-Laki = $16 : 8 = 2$

Perempuan = $24 : 8 = 3$

Jadi, Setiap kelompok diskusi terdiri atas 2 laki-laki dan 3 perempuan.



$30 = 2 \times 3 \times 5$



$48 = 2^4 \times 3$

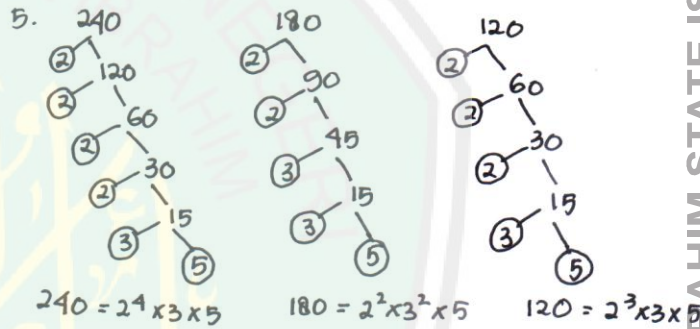
FPB dari 30 dan 48 = $2 \times 3 = 6$

Banyak : B. Tulis $\rightarrow 30 : 6 = 5$

Pensil $\rightarrow 48 : 6 = 8$

Jumlah B. Tulis & pensil = 13

Jadi, jumlah buku tulis & pensil yang diterima siswa adalah 13 biji.



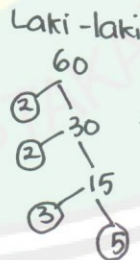
$240 = 2^4 \times 3 \times 5$

$180 = 2^2 \times 3^2 \times 5$

$120 = 2^3 \times 3 \times 5$

FPB dari 240, 180, 120 = $2^2 \times 3 \times 5 = 60$.

Jadi, biaya study luar Sekolah Setiap Siswa adalah 60.000.



$60 = 2^2 \times 3 \times 5$



$90 = 2 \times 3^2 \times 5$

FPB dari 60 dan 90 = $2 \times 3 \times 5 = 30$

titik pertama

Titik Terakhir

08.15

12.30

4 Jam 15 menit

Jadi, banyak kelompok dan lama waktu tempuh peserta Jalan sehat adalah 30 kelompok dan 4 Jam 15 menit.

7. $2 = 2, 4, 6, 8, 10, \underline{12}, 14, 16, 18, 20, 22, 24$

$3 = 3, 6, 9, \underline{12}, 15, 18, 21, 24$

$4 = 4, 8, \underline{12}, 16, 20, 24$

Berlatih bersama pada hari Kamis.

→ 12 hari setelah Kamis yaitu Selasa.

Jadi, mereka akan berlatih bersama lagi pada hari Selasa.

Kpk dari 6, 15 dan 30 adalah $2 \times 3 \times 5 = 30$

Jumlah/banyak baju, seprai dan gorden =

$15 + 6 + 4 = 25$ helai

Jumlah seprai dan gorden → $6 + 4 = 10$ helai

Jadi, banyak seprai dan gorden adalah

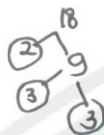
10 helai dan Ibu akan mencuci lagi

Pada hari ke-30.

8. Bus Mlg-Sby Bus Mlg-Lmg



$15 = 3 \times 5$



$18 = 2 \times 3^2$

Kpk dari 15 dan 18 = $2 \times 3^2 \times 5 = 90$

90 diubah ke satuan Jam menjadi

90 : 60 menit = 1 jam 30 menit.

Kedua bus berangkat bersama pada pukul 09.45.

Bus akan berangkat bersama lagi

pada pukul 09.45 + 1 jam 30 menit

yaitu 11.15

Jadi, kedua bus akan berangkat bersama lagi pukul 11.15.

9. $7 = 7, 14, 21, 28, 35, 42, 49, 56, \underline{63}, 70$

$9 = 9, 18, 27, 36, 45, 54, \underline{63}, 72, 81, 90$

Kpk dari 7 dan 9 = 63

Kedua mesin menyemprotkan bersama

pada pukul 08.30

63 → 1 jam 3 menit

Jadi, kedua mesin akan menyemprotkan

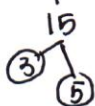
bersama lagi pada pukul 08.30 + 1 jam 3 menit

yaitu 09.33.

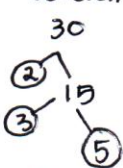
10. Baju seprai gorden



$6 = 2 \times 3$



$15 = 3 \times 5$



$30 = 2 \times 3 \times 5$

Kunci Jawaban Soal Posttest:

1. B
2. A
3. A
4. B
5. C
6. A
7. B
8. A
9. D
10. B



Lampiran 4
Validitas Instrumen

Correlations

		Soal1	Soal2	Soal3	Soal4	Soal5	Soal6	Soal7	Soal8	Soal9	Soal10	Jumlah
Soal1	Pearson Correlation	1	.508**	.057	.004	.195	-.167	.246	.085	.352	.273	.534**
	Sig. (2-tailed)		.003	.760	.982	.293	.369	.183	.648	.052	.138	.002
	N	31	31	31	31	31	31	31	31	31	31	31
Soal2	Pearson Correlation	.508**	1	.141	.343	.131	.210	.218	.212	.502**	.343	.748**
	Sig. (2-tailed)	.003		.448	.059	.483	.256	.238	.253	.004	.059	.000
	N	31	31	31	31	31	31	31	31	31	31	31
Soal3	Pearson Correlation	.057	.141	1	.412*	.153	.226	-.078	-.160	.056	.412*	.391*
	Sig. (2-tailed)	.760	.448		.021	.411	.222	.677	.389	.764	.021	.030
	N	31	31	31	31	31	31	31	31	31	31	31
Soal4	Pearson Correlation	.004	.343	.412*	1	.012	.265	-.056	.114	.137	.048	.449*
	Sig. (2-tailed)	.982	.059	.021		.951	.150	.766	.543	.463	.797	.011
	N	31	31	31	31	31	31	31	31	31	31	31
Soal5	Pearson Correlation	.195	.131	.153	.012	1	.115	-.045	.007	.343	.192	.381*
	Sig. (2-tailed)	.293	.483	.411	.951		.538	.808	.970	.059	.302	.035
	N	31	31	31	31	31	31	31	31	31	31	31
Soal6	Pearson Correlation	-.167	.210	.226	.265	.115	1	-.067	.338	.092	.123	.412*
	Sig. (2-tailed)	.369	.256	.222	.150	.538		.720	.063	.624	.508	.021
	N	31	31	31	31	31	31	31	31	31	31	31
Soal7	Pearson Correlation	.246	.218	-.078	-.056	-.045	-.067	1	.212	.057	.610**	.460**
	Sig. (2-tailed)	.183	.238	.677	.766	.808	.720		.253	.759	.000	.009
	N	31	31	31	31	31	31	31	31	31	31	31
Soal8	Pearson Correlation	.085	.212	-.160	.114	.007	.338	.212	1	.084	-.054	.367*
	Sig. (2-tailed)	.648	.253	.389	.543	.970	.063	.253		.652	.773	.042
	N	31	31	31	31	31	31	31	31	31	31	31
Soal9	Pearson Correlation	.352	.502**	.056	.137	.343	.092	.057	.084	1	.288	.584**
	Sig. (2-tailed)	.052	.004	.764	.463	.059	.624	.759	.652		.116	.001
	N	31	31	31	31	31	31	31	31	31	31	31
Soal10	Pearson Correlation	.273	.343	.412*	.048	.192	.123	.610**	-.054	.288	1	.655**
	Sig. (2-tailed)	.138	.059	.021	.797	.302	.508	.000	.773	.116		.000
	N	31	31	31	31	31	31	31	31	31	31	31
Jumlah	Pearson Correlation	.534**	.748**	.391*	.449*	.381*	.412*	.460**	.367*	.584**	.655**	1
	Sig. (2-tailed)	.002	.000	.030	.011	.035	.021	.009	.042	.001	.000	
	N	31	31	31	31	31	31	31	31	31	31	31

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Lampiran 5

Reliabilitas Instrumen

Case Processing Summary

		N	%
Cases	Valid	31	100.0
	Excluded ^a	0	.0
	Total	31	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.672	10

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Soal1	3.0645	4.262	.349	.645
Soal2	3.1935	3.761	.621	.583
Soal3	3.5484	4.789	.271	.660
Soal4	3.2581	4.465	.252	.665
Soal5	3.4839	4.725	.229	.666
Soal6	2.9677	4.566	.219	.671
Soal7	3.1935	4.428	.260	.664
Soal8	3.4516	4.723	.202	.671
Soal9	3.3871	4.245	.433	.629
Soal10	3.2581	3.998	.502	.612

RELIABILITY

```

/VARIABLES=Soal1 Soal2 Soal3 Soal4 Soal5 Soal6 Soal7 Soal8 Soal9 Soal10
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA
/SUMMARY=TOTAL.
    
```

Lampiran 6

NILAI PRETEST DAN POSTEST

DAFTAR NAMA SISWA KELAS IV SDN PERCOBAAN 1 MALANG TAHUN PELAJARAN : 2017/2018

No.Urut	No.Induk	NAMA	L/P	NILAI MATEMATIKA	
				Pretest	Posttest
1	4460	ADITYA KEVIN D	L	10	20
2	4463	ALZENA ELYSIA SAIFUL	P	40	50
3	4419	ANDIKA YAUMIL KUSUMA	L	50	60
4	4464	ANGGITA AULIATUZZAHRA	P	50	60
5	4420	ANINDYA AULIA ARIEF	P	40	60
6	4421	ANISTASYA KAYLA A	P	70	90
7	4468	ATHALLA DARIN RAHARJO	P	20	60
8	4471	BERLIANTINA INDRASARI	P	50	80
9	4429	BREGAS BISMAWAN	L	30	80
10	4433	DAFFA 'ALIM AL ADZIN	L	30	80
11	4473	DEVITA RIFATUS SHOLIKHAH	P	70	80
12	4437	FELLA ZALFA SAFWANA	P	30	70
13	4409	I WAYAN KERTA ATMAJA	L	20	50
14	4440	INDI NUR KAMALIYA	P	60	60
15	4481	IVAN WAHYU GUSTIANANDA	L	60	30
16	4482	KAYLA NAJMA ZURAF A P.	P	40	80
17	4483	KENNY ADRIAN M,W,	L	60	70
18	4443	M. ELANG MAULANA A.	L	30	60
19	4444	MUHAMAD ARYA F	L	50	100
20	4487	MUHAMMAD RIDWAN E	L	50	70
21	4488	NABILA AZZAHRA	P	30	90
22	4447	NADIAH ARISTA DEWI	P	20	80
23	4491	NELVINA CAHYA NIDYA	P	50	70
24	4492	NIKEISHA DEVARA A	P	70	100
25	4493	RANA HAYYU AZZAHRAH	P	70	80
26	4453	RANA WIRDANUGRAHA	L	40	100
27	4454	RAYYANUNO SATRIA MR	L	50	90
28	4496	SHINTA MAHARANI KALYNA	P	30	100
29	4456	TITANIA ANDREA BUANA PUTRI	P	20	60
30	4459	WIDIA RENATA S	P	40	90
31	4461	AHLUNA AISHA DN	P	40	60
32	4462	AHMAD ANFA'U B	L	30	60

33	4417	ALMIRA RIZKIA RUSAVIANA	P	40	90
34	4418	AMIRA CIATA A	P	20	50
35	4465	ANINDYA NAJLA Q	P	50	80
36	4422	ARDAFFA MAULANA ARIF	L	30	50
37	4423	AULIA AKBAR	L	50	80
38	4424	AZ ZAHRA SALSYABILA	P	30	60
39	4430	CAHYA NAURA NASIFAH	P	60	80
40	4431	CALISTA INDIRA G	P	40	70
41	4432	CHAYYIRA FAHIMA R.P	P	30	60
42	4472	CLARISSA PUTRI P	P	50	100
43	4435	DARWIN KAYSA BAHRI	L	40	80
44	4436	DIMITRI RADITYO A.M	L	40	50
45	4475	FAATIKAH AL BARO'AH	P	30	70
46	4476	FARELL ANDIKA B	L	40	50
47	4477	FATHAN ADITYA FEBRIANANDA	L	30	70
48	4478	FATIMAH NUR KHASANA	P	60	50
49	4438	FLADINI OCTA NURHADI	P	20	70
50	4442	LAURA SHARREN A	P	30	60
51	4484	MOH ALTAF NADHIF AR- ROZY	L	40	60
52	4486	MUHAMMAD FATIH MECCA AKBARRIANSYA	L	50	80
53	4445	MUHAMMAD HILMI KHALID RAHMATAN	L	30	40
54	4448	NAURISYA ASRI ANINDRI	P	40	60
55	4497	SMARA ATTAYA GALANG KINASIH	P	60	80
56	4457	TSALISIA RIHCHA FIRDAUSYA	P	40	50
57	4498	VARELL NADHIF SUSETYAWAN	L	60	100
58	4458	VITO ABISALI A	L	40	60
59	4499	WIDJI LESTARI	P	20	50
60	4500	ZAHRAH NADHIRAH ATHIRAH	P	40	50

Lampiran 7

Uji Normalitas Data

```
NPAR TESTS  
  /K-S(NORMAL)=Pretest Posttest  
  /MISSING ANALYSIS.
```

NPar Tests

[DataSet0]

One-Sample Kolmogorov-Smirnov Test

		Pretest	Posttest
N		60	60
Normal Parameters ^{a,b}	Mean	41.0000	69.0000
	Std. Deviation	14.57883	18.01130
	Absolute	.161	.158
Most Extreme Differences	Positive	.161	.158
	Negative	-.106	-.129
Kolmogorov-Smirnov Z		1.245	1.224
Asymp. Sig. (2-tailed)		.090	.100

a. Test distribution is Normal.

b. Calculated from data.

Lampiran 8

**TABEL
NILAI-NILAI r PRODUCT MOMENT**

N	Taraf Significant		N	Taraf Significant		N	Taraf Significant	
	1%	5%		1%	5%		1%	5%
3	0,999	0,997	26	0,496	0,388	50	0,361	0,279
4	0,990	0,950	27	0,487	0,381	55	0,345	0,266
5	0,959	0,878	28	0,478	0,374	60	0,330	0,254
6	0,917	0,811	29	0,470	0,367	65	0,317	0,244
7	0,874	0,754	30	0,463	0,361	70	0,306	0,235
8	0,834	0,707	31	0,456	0,355	75	0,296	0,227
9	0,798	0,666	32	0,449	0,349	80	0,286	0,220
10	0,765	0,632	33	0,442	0,344	85	0,278	0,213
11	0,735	0,602	34	0,436	0,339	90	0,270	0,207
12	0,708	0,576	35	0,430	0,334	95	0,263	0,202
13	0,684	0,553	36	0,424	0,329	100	0,256	0,195
14	0,661	0,532	37	0,418	0,325	125	0,230	0,176
15	0,641	0,514	38	0,413	0,320	150	0,210	0,159
16	0,623	0,497	39	0,408	0,316	175	0,194	0,148
17	0,606	0,482	40	0,403	0,312	200	0,181	0,138
18	0,590	0,468	41	0,398	0,308	300	0,148	0,113
19	0,575	0,456	42	0,393	0,304	400	0,128	0,098
20	0,561	0,444	44	0,384	0,301	500	0,115	0,088
21	0,549	0,433	45	0,380	0,297	600	0,105	0,080
22	0,537	0,423	46	0,376	0,294	700	0,097	0,074
23	0,526	0,413	47	0,372	0,291	800	0,091	0,070
24	0,515	0,404	48	0,368	0,288	900	0,086	0,065
25	0,505	0,396	49	0,364	0,284	1000	0,081	0,062

Lampiran 9

Uji Homogenitas Data

```
EXAMINE VARIABLES=Pretest BY Posttest
/PLOT BOXPLOT STEMLEAF HISTOGRAM SPREADLEVEL(1)
/COMPARE GROUPS
/STATISTICS DESCRIPTIVES
/CINTERVAL 95
/MISSING LISTWISE
/NOTOTAL.
```

Explore

[DataSet0]

Warnings

Pretest is constant when Posttest = 20.00. It will be included in any boxplots produced but other output will be omitted.
 Pretest is constant when Posttest = 30.00. It will be included in any boxplots produced but other output will be omitted.
 Pretest is constant when Posttest = 40.00. It will be included in any boxplots produced but other output will be omitted.

Posttest

Case Processing Summary

	Posttest	Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
	20.00	1	100.0%	0	0.0%	1	100.0%
	30.00	1	100.0%	0	0.0%	1	100.0%
	40.00	1	100.0%	0	0.0%	1	100.0%
	50.00	10	100.0%	0	0.0%	10	100.0%
Pretest	60.00	15	100.0%	0	0.0%	15	100.0%
	70.00	8	100.0%	0	0.0%	8	100.0%
	80.00	13	100.0%	0	0.0%	13	100.0%
	90.00	5	100.0%	0	0.0%	5	100.0%
	100.00	6	100.0%	0	0.0%	6	100.0%

Descriptives^{a,b,c}

	Posttest		Statistic	Std. Error
Pretest	50.00	Mean	35.0000	4.01386

		Lower Bound	25.9200	
	95% Confidence Interval for Mean	Upper Bound	44.0800	
	5% Trimmed Mean		34.4444	
	Median		40.0000	
	Variance		161.111	
	Std. Deviation		12.69296	
	Minimum		20.00	
	Maximum		60.00	
	Range		40.00	
	Interquartile Range		20.00	
	Skewness		.408	.687
	Kurtosis		.254	1.334
	Mean		36.6667	2.87297
		Lower Bound	30.5048	
	95% Confidence Interval for Mean	Upper Bound	42.8286	
	5% Trimmed Mean		36.2963	
	Median		40.0000	
	Variance		123.810	
60.00	Std. Deviation		11.12697	
	Minimum		20.00	
	Maximum		60.00	
	Range		40.00	
	Interquartile Range		10.00	
	Skewness		.412	.580
	Kurtosis		-.010	1.121
	Mean		38.7500	4.79490
		Lower Bound	27.4119	
	95% Confidence Interval for Mean	Upper Bound	50.0881	
	5% Trimmed Mean		38.6111	
	Median		35.0000	
	Variance		183.929	
70.00	Std. Deviation		13.56203	
	Minimum		20.00	
	Maximum		60.00	
	Range		40.00	

	Interquartile Range		20.00	
	Skewness		.294	.752
	Kurtosis		-1.078	1.481
	Mean		47.6923	4.25981
	95% Confidence Interval for Mean	Lower Bound	38.4110	
		Upper Bound	56.9736	
	5% Trimmed Mean		47.9915	
	Median		50.0000	
	Variance		235.897	
80.00	Std. Deviation		15.35895	
	Minimum		20.00	
	Maximum		70.00	
	Range		50.00	
	Interquartile Range		25.00	
	Skewness		-.197	.616
	Kurtosis		-.626	1.191
	Mean		46.0000	6.78233
	95% Confidence Interval for Mean	Lower Bound	27.1692	
		Upper Bound	64.8308	
	5% Trimmed Mean		45.5556	
	Median		40.0000	
	Variance		230.000	
90.00	Std. Deviation		15.16575	
	Minimum		30.00	
	Maximum		70.00	
	Range		40.00	
	Interquartile Range		25.00	
	Skewness		1.118	.913
	Kurtosis		1.456	2.000
	Mean		50.0000	5.77350
	95% Confidence Interval for Mean	Lower Bound	35.1587	
		Upper Bound	64.8413	
100.00	5% Trimmed Mean		50.0000	
	Median		50.0000	
	Variance		200.000	

Std. Deviation	14.14214	
Minimum	30.00	
Maximum	70.00	
Range	40.00	
Interquartile Range	25.00	
Skewness	.000	.845
Kurtosis	-.300	1.741

- a. Pretest is constant when Posttest = 20.00. It has been omitted.
- b. Pretest is constant when Posttest = 30.00. It has been omitted.
- c. Pretest is constant when Posttest = 40.00. It has been omitted.

Test of Homogeneity of Variance^{a,b,c}

		Levene Statistic	df1	df2	Sig.
Pretest	Based on Mean	.288	5	51	.918
	Based on Median	.193	5	51	.964
	Based on Median and with adjusted df	.193	5	45.887	.964
	Based on trimmed mean	.267	5	51	.929

- a. Pretest is constant when Posttest = 20.00. It has been omitted.
- b. Pretest is constant when Posttest = 30.00. It has been omitted.
- c. Pretest is constant when Posttest = 40.00. It has been omitted.

Lampiran 10

Uji Paired t-test

T-Test

[DataSet0]

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	41.0000	60	14.57883	1.88212
	Posttest	69.0000	60	18.01130	2.32525

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pretest & Posttest	60	.385	.002

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Pretest – Posttest	-28.0000 0	18.30069	2.36261	-32.72757	-23.27243	-11.851	59	.000

Lampiran 11

ANALISIS BUTIR SOAL PRETEST DAN POSTTEST MATERI FPB

60

No.	Nama	Soal Pretest dan Posttest										Jumlah Skor	Nilai	% Keberhasilan	Ketuntasan	
		FPB					KPK								Tuntas	Blm Tuntas
		Soal 1	Soal 2	Soal 3	Soal 4	Soal 5	Soal 6	Soal 7	Soal 8	Soal 9	Soal 10					
1	ADITYA KEVIN D	0	1	0	0	0	0	0	0	0	0	1	10	10		tidak tuntas
2	ALZENA ELYSIA SAIFUL	1	1	0	0	0	0	1	0	1	0	4	40	40		tidak tuntas
3	ANDIKA YAUMIL KUSUMA	1	1	0	0	0	0	1	0	1	1	5	50	50		tidak tuntas
4	ANGGITA AULIATUZZAHRA	1	1	1	0	0	0	1	0	1	0	5	50	50		tidak tuntas
5	ANINDYA AULIA ARIEF	1	0	1	0	1	0	1	0	0	0	4	40	40		tidak tuntas
6	ANISTASYA KAYLA A	1	1	1	0	1	1	0	1	1	0	7	70	70		tidak tuntas
7	ATHALLA DARIN RAHARJO	1	1	0	0	0	0	0	0	0	0	2	20	20		tidak tuntas
8	BERLIANTINA INDRASARI	0	0	1	1	0	1	0	0	1	1	5	50	50		tidak tuntas
9	BREGAS BISMAWAN	0	1	1	0	0	1	0	0	0	0	3	30	30		tidak tuntas
10	DAFFA 'ALIM AL ADZIN	0	1	0	0	1	1	0	0	0	0	3	30	30		tidak tuntas
11	DEVITA RIFATUS SHOLIKHAH	0	1	1	1	0	1	1	0	0	1	7	70	70		tidak tuntas
12	FELLA ZALFA SAFWANA	1	1	1	0	0	0	0	0	0	0	3	30	30		tidak tuntas

13	I WAYAN KERTA ATMAJA	0	0	1	0	0	0	0	0	0	0	2	20	20	tidak tuntas
14	INDI NUR KAMALIYA	1	1	1	0	1	0	1	0	0	1	6	60	60	tidak tuntas
15	IVAN WAHYU GUSTIANANDA	1	1	1	0	0	1	0	0	0	1	6	60	60	tidak tuntas
16	KAYLA NAJMA ZURAF A P.	1	1	1	0	0	1	0	0	0	0	4	40	40	tidak tuntas
17	KENNY ADRIAN M,W,	1	0	1	0	1	1	0	0	1	0	6	60	60	tidak tuntas
18	M. ELANG MAULANA A.	1	0	1	1	0	0	0	0	0	0	3	30	30	tidak tuntas
19	MUHAMAD ARYA F	1	1	1	0	0	1	0	0	0	0	5	50	50	tidak tuntas
20	MUHAMMAD RIDWAN E	1	1	1	0	0	0	0	0	1	0	5	50	50	tidak tuntas
21	NABILA AZZAHRA	0	1	0	1	0	0	0	0	1	0	3	30	30	tidak tuntas
22	NADIAH ARISTA DEWI	0	1	0	0	0	1	0	0	0	0	2	20	20	tidak tuntas
23	NELVINA CAHYA NIDYA	1	1	0	1	0	1	0	0	0	0	5	50	50	tidak tuntas
24	NIKEISHA DEVARA A	0	1	1	1	1	1	1	0	1	0	7	70	70	tidak tuntas
25	RANA HAYYU AZZAHRAH	0	1	1	1	0	0	1	0	1	1	7	70	70	tidak tuntas
26	RANA WIRDANUGRAHA	0	1	1	0	0	0	1	0	0	0	4	40	40	tidak tuntas
27	RAYYANUNO SATRIA MR	1	1	1	0	0	1	0	0	0	0	4	40	40	tidak tuntas
28	SHINTA MAHARANI KALYNA	1	1	1	0	0	0	0	0	0	0	3	30	30	tidak tuntas

29	TITANIA ANDREA BUANA PUTRI	1	0	0	0	1	0	0	0	0	0	2	20	20	tidak tuntas
30	WIDIA RENATA S	1	1	1	1	0	0	0	0	0	0	4	40	40	tidak tuntas
31	AHLUNA AISHA DN	1	1	0	1	0	1	0	0	0	0	4	40	40	tidak tuntas
32	AHMAD ANFA'U B	1	1	1	0	0	0	0	0	0	0	3	30	30	tidak tuntas
33	ALMIRA RIZKIA RUSAVIANA	1	1	1	0	0	1	0	0	0	0	4	40	40	tidak tuntas
34	AMIRA CIATA A	1	1	0	0	0	0	0	0	0	0	2	20	20	tidak tuntas
35	ANINDYA NAJLA Q	1	1	1	1	0	1	0	0	0	0	5	50	50	tidak tuntas
36	ARDAFFA MAULANA ARIF	1	1	1	0	0	0	0	0	0	0	3	30	30	tidak tuntas
37	AULIA AKBAR	1	1	0	1	0	0	0	0	0	1	5	50	50	tidak tuntas
38	AZ ZAHRA SALSYABILA	1	0	1	0	0	1	0	0	0	0	3	30	30	tidak tuntas
39	CAHYA NAURA NASIFAH	1	1	1	1	0	0	0	0	1	1	6	60	60	tidak tuntas
40	CALISTA INDIRA G	1	1	1	1	0	0	0	0	0	0	4	40	40	tidak tuntas
41	CHAYYIRA FAHIMA R.P	1	1	1	0	0	0	0	0	0	0	3	30	30	tidak tuntas
42	CLARISSA PUTRI P	1	0	1	0	0	0	1	0	1	0	5	50	50	tidak tuntas
43	DARWIN KAYSA BAHRI	1	1	0	0	1	1	0	0	0	0	4	40	40	tidak tuntas
44	DIMITRI RADITYO A.M	0	0	1	0	0	1	0	0	1	1	4	40	40	tidak tuntas
45	FAATIKAH AL	1	1	1	0	0	0	0	0	0	0	3	30	30	tidak

	BARO'AH															tuntas
46	FARELL ANDIKA B	1	1	1	1	0	0	0	0	0	0	4	40	40		tidak tuntas
47	FATHAN ADITYA FEBRIANANDA	1	1	1	0	0	0	0	0	0	0	3	30	30		tidak tuntas
48	FATIMAH NUR KHASANA	1	1	1	0	0	1	0	0	1	1	6	60	60		tidak tuntas
49	FLADINI OCTA NURHADI	1	0	1	0	0	0	0	0	0	0	2	20	20		tidak tuntas
50	LAURA SHARREN A	1	1	1	0	0	0	0	0	0	0	3	30	30		tidak tuntas
51	MOH ALTAF NADHIF AR-ROZY	1	1	1	0	0	1	0	0	0	0	4	40	40		tidak tuntas
52	MUHAMMAD FATIH MECCA AKBARRIANSYA	1	1	0	1	1	0	0	0	1	0	5	50	50		tidak tuntas
53	MUHAMMAD HILMI KHALID RAHMATAN	1	1	1	0	0	0	0	0	0	0	3	30	30		tidak tuntas
54	NAURISYA ASRI ANINDRI	1	0	1	0	0	1	0	0	1	0	4	40	40		tidak tuntas
55	SMARA ATTAYA GALANG KINASIH	0	0	1	1	1	0	0	0	1	1	6	60	60		tidak tuntas
56	TSALISIA RIHCHA FIRDAUSYA	1	1	1	1	0	0	0	0	0	0	4	40	40		tidak tuntas
57	VARELL NADHIF SUSETYAWAN	1	1	1	1	1	0	0	0	1	0	6	60	60		tidak tuntas
58	VITO ABISALI A	1	1	1	0	0	1	0	0	0	0	4	40	40		tidak tuntas
59	WIDJI LESTARI	1	1	0	0	0	0	0	0	0	0	2	20	20		tidak tuntas
60	ZAHRAH NADHIRAH	1	1	1	1	0	0	0	0	0	0	4	40	40		tidak tuntas

	ATHIRAH															
Jumlah Soal Benar		47	48	45	19	11	23	10	13	18	11	245				
Jumlah Soal Salah		13	12	15	41	49	37	50	47	42	49					
% Ketercapaian Jawaban Benar		78	80	75	32	18	38	17	22	30	18					
% Ketercapaian Jawaban Salah		22	20	25	68	82	62	83	78	70	82					

ANALISIS BUTIR SOAL PRETEST DAN POSTTEST MATERI KPK

No.	Nama	Soal Pretest dan Posttest										Jumlah Skor	Nilai	% Keberhasilan	Ketuntasan		
		FPB					KPK								Tuntas	Blm Tuntas	
		Soal 1	Soal 2	Soal 3	Soal 4	Soal 5	Soal 6	Soal 7	Soal 8	Soal 9	Soal 10						
1	ADITYA KEVIN D	1	0	0	1	0	0	0	0	0	0	0	2	20	20		tidak tuntas
2	ALZENA ELYSIA SAIFUL	1	0	1	0	0	1	1	1	0	0	0	5	50	50		tidak tuntas
3	ANDIKA YAUMIL KUSUMA	1	0	0	1	1	1	1	0	1	0	0	6	60	60		tidak tuntas
4	ANGGITA AULIATUZZAHRA	1	1	1	1	1	0	0	0	1	0	0	6	60	60		tidak tuntas
5	ANINDYA AULIA ARIEF	1	0	1	1	1	0	1	1	0	0	0	6	60	60		tidak tuntas
6	ANISTASYA KAYLA A	1	1	1	1	1	1	1	1	1	0	0	9	90	90	tuntas	

7	ATHALLA DARIN RAHARJO	1	1	1	1	1	0	1	0	0	0	6	60	60		tidak tuntas
8	BERLIANTINA INDRASARI	1	1	0	1	1	0	1	1	1	1	8	80	80	tuntas	
9	BREGAS BISMAWAN	1	1	1	0	1	1	1	1	0	1	8	80	80	tuntas	
10	DAFFA 'ALIM AL ADZIN	1	1	1	1	1	0	1	1	1	0	8	80	80	tuntas	
11	DEVITA RIFATUS SHOLIKHAH	1	1	1	1	1	1	1	1	0	0	8	80	80	tuntas	
12	FELLA ZALFA SAFWANA	1	1	1	0	1	0	1	1	0	1	7	70	70		tidak tuntas
13	I WAYAN KERTA ATMAJA	1	1	1	0	1	1	0	0	0	0	5	50	50		tidak tuntas
14	INDI NUR KAMALIYA	1	1	0	0	0	1	1	0	1	1	6	60	60		tidak tuntas
15	IVAN WAHYU GUSTIANANDA	1	1	1	0	0	0	0	0	0	0	3	30	30		tidak tuntas
16	KAYLA NAJMA ZURAF A P.	1	1	1	0	1	1	1	1	1	0	8	80	80	tuntas	
17	KENNY ADRIAN M,W,	1	1	1	0	0	1	1	1	0	1	7	70	70		tidak tuntas
18	M. ELANG MAULANA A.	1	1	0	1	0	1	1	0	0	1	6	60	60		tidak tuntas
19	MUHAMAD ARYA F	1	1	1	1	1	1	1	1	1	1	10	100	100	tuntas	
20	MUHAMMAD RIDWAN E	1	1	1	0	0	1	1	0	1	1	7	70	70		tidak tuntas
21	NABILA AZZAHRA	1	1	1	1	1	1	1	1	0	1	9	90	90	tuntas	
22	NADIAH ARISTA DEWI	1	1	1	1	0	1	1	1	0	1	8	80	80	tuntas	
23	NELVINA CAHYA	1	1	1	1	1	0	0	1	0	1	7	70	70		tidak

	NIDYA															tuntas
24	NIKEISHA DEVARA A	1	1	1	1	1	1	1	1	1	1	10	100	100	tuntas	
25	RANA HAYYU AZZAHRAH	1	1	1	1	1	1	0	1	0	1	8	80	80	tuntas	
26	RANA WIRDANUGRAHA	1	1	1	1	1	1	1	1	1	1	10	100	100	tuntas	
27	RAYYANUNO SATRIA MR	1	1	1	1	1	1	1	0	1	1	9	90	90	tuntas	
28	SHINTA MAHARANI KALYNA	1	1	1	1	1	1	1	1	1	1	10	100	100	tuntas	
29	TITANIA ANDREA BUANA PUTRI	1	1	1	0	0	1	1	0	1	0	6	60	60		tidak tuntas
30	WIDIA RENATA S	1	1	1	1	1	1	1	1	0	1	9	90	90	tuntas	
31	AHLUNA AISHA DN	1	1	0	0	1	0	1	1	0	1	6	60	60		tidak tuntas
32	AHMAD ANFA'U B	1	0	1	1	1	1	0	1	0	0	6	60	60		tidak tuntas
33	ALMIRA RIZKIA RUSAVIANA	1	1	1	1	0	1	1	1	1	1	9	90	90	tuntas	
34	AMIRA CIATA A	1	0	0	0	0	1	1	1	1	0	5	50	50		tidak tuntas
35	ANINDYA NAJLA Q	1	1	1	0	1	1	1	1	0	1	8	80	80	tuntas	
36	ARDAFFA MAULANA ARIF	1	0	0	1	1	1	1	0	0	0	5	50	50		tidak tuntas
37	AULIA AKBAR	1	1	1	1	1	1	1	0	1	0	8	80	80	tuntas	
38	AZ ZAHRA SALSYABILA	1	0	1	0	1	0	1	1	1	0	6	60	60		tidak tuntas
39	CAHYA NAURA NASIFAH	1	1	1	1	0	1	1	1	0	1	8	80	80	tuntas	

40	CALISTA INDIRA G	1	1	1	1	1	0	1	0	0	1	7	70	70		tidak tuntas
41	CHAYYIRA FAHIMA R.P	1	1	1	0	1	1	1	0	0	0	6	60	60		tidak tuntas
42	CLARISSA PUTRI P	1	1	1	1	1	1	1	1	1	1	10	100	100	tuntas	
43	DARWIN KAYSA BAHRI	1	1	1	1	1	1	1	1	0	0	8	80	80	tuntas	
44	DIMITRI RADITYO A.M	1	1	0	1	0	0	1	1	0	0	5	50	50		tidak tuntas
45	FAATIKAH AL BARO'AH	1	1	1	1	0	0	1	0	1	1	7	70	70		tidak tuntas
46	FARELL ANDIKA B	1	1	0	0	1	0	1	1	0	0	5	50	50		tidak tuntas
47	FATHAN ADITYA FEBRIANANDA	1	1	1	0	1	1	0	1	1	0	7	70	70		tidak tuntas
48	FATIMAH NUR KHASANA	1	0	0	0	1	0	1	1	0	1	5	50	50		tidak tuntas
49	FLADINI OCTA NURHADI	1	1	1	0	1	1	0	1	1	0	7	70	70		tidak tuntas
50	LAURA SHARREN A	1	1	1	0	1	0	1	1	0	0	6	60	60		tidak tuntas
51	MOH ALTAF NADHIF AR-ROZY	1	1	0	0	1	0	1	1	0	1	6	60	60		tidak tuntas
52	MUHAMMAD FATIH MECCA AKBARRIANSYA	1	1	1	1	0	1	0	1	1	1	8	80	80	tuntas	
53	MUHAMMAD HILMI KHALID RAHMATAN	1	0	1	0	0	0	1	0	0	1	4	40	40		tidak tuntas
54	NAURISYA ASRI ANINDRI	1	1	1	0	1	1	1	0	0	0	6	60	60		tidak tuntas
55	SMARA ATTAYA	1	1	1	1	1	0	1	1	0	1	8	80	80	tuntas	

	GALANG KINASHIH															
56	TSALISIA RIHCHA FIRDAUSYA	1	0	1	0	1	0	1	1	0	0	5	50	50		tidak tuntas
57	VARELL NADHIF SUSETYAWAN	1	1	1	1	1	1	1	1	1	1	10	100	100	tuntas	
58	VITO ABISALI A	1	1	1	0	0	1	1	1	0	0	6	60	60		tidak tuntas
59	WIDJI LESTARI	1	1	1	0	1	0	0	0	1	0	5	50	50		tidak tuntas
60	ZAHRAH NADHIRAH ATHIRAH	1	1	1	0	0	1	1	0	0	0	5	50	50		tidak tuntas
Jumlah Soal Benar		60	49	48	33	42	38	49	40	25	30	414				
Jumlah Soal Salah		0	11	12	27	18	22	11	20	35	30					
% Ketercapaian Jawaban Benar		100	82	80	55	70	63	82	67	42	50					
% Ketercapaian Jawaban Salah		0	18	20	45	30	37	18	33	58	50					

Lampiran 12

LEMBAR JAWABAN

Nama : Caitlyn Kev. A. Zamran

Kelas/No.Absen : 4A / 1

1. c
2. d
3. a
4. a
5. a
6. d
7. b
8. a
9. b
10. a

16. berapa banyak permen rasa cok. kit. dokumentasi
jumlah dan permen rasa jagged = 4
total
berapa jumlah totalnya dan buah apa saja
sediakan dalam alat masing masing

10

LEMBAR JAWABAN

Nama : Alzena Ehsia Saiful.

Kelas/No.Absen : 1A / 2

1. D. 4
2. A. 2 spidol merah dan 3 spidol biru.
3. B. 5 lembar.
4. A. 21.
5. C. Jumat, 04 Mei 2018.
6. B. 2.500 km
7. C. 150
8. B. 12 20
9. A. 60 km pada pukul 10.00
10. B. 20 Maret 2018

B) 1.
a) 43
b) rasa coklat = 2
rasa jeruk = 9
rasa mangga = 10

2. a) 5.
b) 45

40

LEMBAR JAWABAN

Nama : Anindya aulia arief

Kelas/No.Absen : 4A/5

- 1. d
- ~~2. c~~
- 3. c
- ~~4. b~~
- 5. d
- ~~6. b~~
- 7. c
- ~~8. a~~
- ~~9. b~~
- 10. b

1 a. 6
1 B. 7, 8, 10
2 a. jeruk nipis
2 B. 3

40

LEMBAR JAWABAN

Nama : Andika Yauwal Kusuma (Andika)

Kelas/No.Absen : 4A/3

- 1. d
- 2. a
- ~~3. d~~
- ~~4. a~~
- 5. b
- 6. a
- 7. c
- ~~8. a~~
- 9. a
- 10. c

(1a/6)
1b/ 21, 24 dan 30
2a jeruk nipis
2 b/9)

50

LEMBAR JAWABAN

Nama : Ahluro Alisha Dzunnuza

Kelas/No.Absen : IVB / 01

1. D. 4
2. A. 2 spidol merah, 3 spidol biru
3. D. 15 lembar
4. D. 36
5. a. Selasa, 24 April 2018
6. C. 2.500
7. A. 50
- 8.
- 9.
- 10.

90

LEMBAR JAWABAN

Nama : Ahmad Anfaul Barokatan

Kelas/No.Absen : 4B / 02

1. d. 4
2. A 2 spidol merah dan 3 spidol biru
3. c 9 lembar
4. a 21
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

30

LEMBAR JAWABAN

Nama : Ardaffa Maulana Abif (Ardaffa)

Kelas/No.Absen : 4B/07

1. D.4
2. A. 2 spindel biru dan 3 spindel merah
3. C. 9 lembar
4. A. 21 sekolah
5. C. Jumat, 04 Mei 2018
8. b. 2.500 km
- 7.
- 8.
- 9.
- 10.

LEMBAR JAWABAN

Nama : Calista Indira Gunawan

Kelas/No.Absen : 4B/15

1. d.4
2. a. 2 spindel merah dan 3 spindel biru
3. c. 9 lembar
4. d.63
5. a. 24 April
6. a. 2250
7. d. 250
8. 1
- 9.
- 10.

LEMBAR JAWABAN

Nama : Zahra Nadhira Athura

Kelas/No.Absen : 4B/39

1. d. 4
2. a. 2 spidol merah dan 3 spidol biru
3. C 9 lembar
4. d. 6B
5. /
6. /
7. a. 50
8. /
9. /
10. /

8
40

LEMBAR JAWABAN

Nama : Widji Lestari

Kelas/No.Absen : 38

1. d. 4.
2. c. 6 spidol merah dan 9 spidol biru.
3. c 9 lembar.
4. a. 21
5. a. Selasa 24 April 2018.
6. d. 2.275 km.
7. /
8. /
9. /
10. /

8
20

LEMPAR JAWABAN

Nama : Alzenci Elysia Saiful

Kelas/No.Absen : 4A / 2

1. B. Selasa
2. A. 09.30 .P
3. A. 30 kelompok dan 4 jam 15 menit.
4. A. 9 helai cucian dan hari ke 15. B
5. C. 2 dan 1. A
6. A. 11 15.
7. B. 6 piring berisi 3 apel 4 salak
8. A 2
9. A. 12 biji B
10. A 20.000. C

B

50

LEMBAR JAWABAN

Nama : Daffa alim al A.

Kelas/No.Absen : 4A / 11

- B
1. B
 2. D
 3. A
 4. B
 5. A
 6. C A
 7. B
 8. A
 9. B
 10. B C

80

LEMBAR JAWABAN

B

Nama : Amndya aulia arief

Kelas/No.Absen : 4A/5

1. b. Selasa
2. d. 09.30 D
3. a. 30 kelompok 4 jam 15 menit
4. b. 10 helai dan hari ke 30
5. a. 2 dan 3
6. b. 11.45 A
7. b. 6 piring berisi 3 apel dan 4 salad
8. a. 2
9. c. 14 B
10. d. 20.000 C

60

LEMBAR JAWABAN

B

Nama : andika yamil khusuma

Kelas/No.Absen : 4A/3

1. B
2. D
3. D
4. B
5. A
6. A
7. B
8. A
9. B

60

A

LEMBAR JAWABAN

Nama : Rini (Aminda naja)

Kelas/No.Absen : 4035

- 1. B
- 2. A
- 3. A
- 4. A B
- 5. C
- 6. A
- 7. B
- 8. A
- 9. A D
- 10. B

Signature
80

Nama : Laura Sharen Angelita

Kelas/No.Absen : IV-B /26

- 1. B
- 2. D
- 3. A
- 4. C B
- 5. A
- 6. B A
- 7. B
- 8. A
- 9. D B
- 10. B C

Signature
60

LEMBAR JAWABAN

Nama : Calista Lndira Gunawan

A

Kelas/No.Absen : 4B/15

1. b.
2. a
3. a
4. b
5. c.
6. c. A
7. b.
8. b. A
9. b. D
10. b.

LEMBAR JAWABAN

Nama : Smara attaya G.K

Kelas/No.Absen : 4B/34

1. B. selesai
2. d. 09.33
3. a. 30 kelompok dan 4 jam 15 menit
4. b. 10 helai cucian dan hari ke 30
5. a. 2 dan 3
6. c. 12, 15 A
7. b. 6 pirning berisi 3 apel dan 4 salak
8. a. 2
9. a. 12 biji B
10. c. 60.000

LEMBAR JAWABAN

Nama : Rama Wirdongratia

B

Kelas/No.Absen : IIA 135

1. b.
2. d.
3. a.
4. b.
5. a.
6. a.
7. b.
8. a.
9. b.
10. c.

LEMBAR JAWABAN


Nama : Nikeisha Devara Anindita

MODE : B

Kelas/No.Absen : IV A / 30

1. b.
2. d.
3. a.
4. b.
5. a.
6. a.
7. b.
8. a.
9. b.
10. c.

Lampiran 13



KEMENTERIAN AGAMA REPUBLIK INDONESIA
UNIVERSITAS ISLAM NEGERI MAULANA MALIK IBRAHIM MALANG
FAKULTAS ILMU TARBİYAH DAN KEGURUAN
Jalan Gajayana 50, Telepon (0341) 552398 Faximile (0341) 552398 Malang
[http:// fitk.uin-malang.ac.id](http://fitk.uin-malang.ac.id). email : fitk@uin_malang.ac.id

Nomor : 3394/Un.03.1/TL.00.1/11/2017
Sifat : Penting
Lampiran : -
Hal : Izin Penelitian

20 November 2017

Kepada
Yth. Kepala SDN Percobaan 1 Malang
di
Malang

Assalamu'alaikum Wr. Wb.

Dengan hormat, dalam rangka menyelesaikan tugas akhir berupa penyusunan skripsi mahasiswa Fakultas Ilmu Tarbiyah dan Keguruan (FITK) Universitas Islam Negeri Maulana Malik Ibrahim Malang, kami mohon dengan hormat agar mahasiswa berikut:


Nama : Nikmatus Sholikhah
NIM : 14140102
Jurusan : Pendidikan Guru Madrasah Ibtidaiyah (PGMI)
Semester - Tahun Akademik : Ganjil - 2017/2018
Judul Skripsi : Pengaruh Pendekatan Realistik Mathematics Education (RME) terhadap Hasil Belajar Siswa Kelas IV pada Pelajaran Matematika di SDN Percobaan 1 Malang

Lama Penelitian : November 2017 sampai dengan Januari 2018
(3 bulan)

diberi izin untuk melakukan penelitian di lembaga/instansi yang menjadi wewenang Bapak/Ibu.

Demikian, atas perkenan dan kerjasama Bapak/Ibu yang baik disampaikan terima kasih.

Wassalamu'alaikum Wr. Wb.


Dr. H. Agus Maimun, M.Pd
NIP. 19650817 199803 1 003

Tembusan :
1. Yth. Ketua Jurusan PGMI
2. Arsip

Lampiran 14



PEMERINTAH KOTA MALANG
DINAS PENDIDIKAN

SEKOLAH DASAR NEGERI PERCOBAAN 1

JL. MAGELANG NO. 4 TILP. (0341) 552739 - 569192
KECAMATAN LOWOKWARU
KOTA MALANG

SURAT KETERANGAN

Nomor : 070 /167/ 35.73.301.01.197/ SDNP 1 / 2018

Yang bertanda tangan di bawah ini Kepala SDN PERCOBAAN 1 Kota
Malang menerangkan bahwa :

N a m a : Nikmatus Sholikhah
NIM : 14140102
Jurusan : Pendidikan Guru Madrasah Ibtidaiyah (PGMI)
Universitas Islam Negeri Maulana Malik Ibrahim Malang

Nama tersebut di atas benar-benar telah selesai mengadakan penelitian dalam rangka penulisan skripsi pada bulan November 2017 sampai dengan Januari 2018 dengan judul " Pengaruh Pendekatan Realistik Mathematics Education (RME) terhadap Hasil Belajar Siswa Kelas IV pada Pelajaran Matematika di SDN Percobaan 1 Malang.

Demikian surat keterangan ini dibuat, untuk dipergunakan sebagaimana mestinya.

Malang, 16 April 2018

Kepala SDN Percobaan 1
Kota Malang



Dra. ANNY SAIDA

Pembina

NIP. 19630701 199303 2 003

Lampiran 15



KEMENTERIAN AGAMA REPUBLIK INDONESIA
 UNIVERSITAS ISLAM NEGERI MAULANA MALIK IBRAHIM MALANG
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BUKTI KONSULTASI SKRIPSI
JURUSAN PENDIDIKAN GURU MADRASAH IBTIDAIYAH

Nama : NIKMATUS SHOLIKHAH
 NIM : 14140102
 Judul : PENGARUH PENDEKATAN MATEMATIKA REALISTIC (RME) TERHADAP
 HASIL BELAJAR SISWA KELAS IV PADA PELAJARAN MATEMATIKA
 DI SDN PERCOBAAN 1 MALANG
 Dosen Pembimbing : ULFAH MUHAYANI, M.PP

No.	Tgl/ Bln/ Thn	Materi Konsultasi	Tanda Tangan Pembimbing Skripsi
1.	Kamis, 29/03/2018	BAB I - II	
2.	Kamis, 05/04/2018	Revisi Bab I, III, IV	
3.	senin, 09/04/2018	Revisi Bab IV	
4.	Rabu, 11/04/2018	Bab V dan VI	
5.	12/04/2018	Bab I - VI	
6.	16/04/2018	Translate Bab I - III	
7.	19/04/2018	Translate Bab I - VI	
8.	20/04/2018	ACC	
9.			
10.			
11.			
12.			

Malang, 20 April 2018..

Mengetahui
 Ketua Jurusan PGMI,

H. Ahmad Sholeh, M.Ag
 NIP. 197608032006041001



Lampiran 16



Gambar 1.1 Keadaan Kelas ketika observasi



Gambar 1.2 Pembagian soal *pre-test*



Gambar 1.2 Siswa mengerjakan soal *pre-test*



Gambar 1.3 Media Dakon Matematika (Dakota)

Pembelajaran menggunakan pendekatan RME







Gambar 1.5 Siswa mengerjakan latihan soal



Gambar 1.6 Siswa mengerjakan soal *post-test*

STUDENT BIODATA



Name : Nikmatus Sholikhah
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Date and Place of Birth : Lamongan, 08-02-1996
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Malang, May 17th 2018

Nikmatus Sholikhah
NIM.14140102