Analysis of Mathematical Problem Solving Ability through the Use of School Cooperative Context as an Innovative Contextual Approach in Learning Straight Line Equation Material

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Abstract

The purpose of this study was to describe the mathematical ability of grade VIII students at SMP Negeri 2 Sungai Keruh, Musi Banyuasin Regency in solving problems on the material of straight line equations by using the context of school cooperatives where school cooperatives provide an authentic context-based learning environment, allowing students to directly apply the concepts they have learned, including in the field of mathematics. Students' ability to solve mathematical problems plays an important role in determining the level of student success in learning. The subjects this study involved 30 students who were class VIII students. To describe in depth the students' ability to solve problems, a comprehensive approach is needed that not only includes the final results, but also the thought processes and strategies they use in solving these problems. With descriptive method and qualitative approach is the type of this research. The tool instrument in this study used in the form of an instrument to do a test on the ability solve mathematical problems with the material straight line equations as much as 2 activities of problem test activities and in the form of interviews. The level of students' ability to solve math problems at each Polya stage is as follows. 27% of students are categorized as high ability, 50% of students with medium ability and 23% of students with low ability to solve problems. In general, this situation illustrates that students' ability to solve mathematical problems is at a moderate level. These results illustrate that students' ability to solve mathematical problems can be improved through a more contextualized direct approach where problem-based learning helps students understand mathematical concepts by linking theory to real situations, encouraging students to think critically in solving problems directly using problems that are very relevant in everyday life.

Keywords: Straight Line Equation, Mathematical Problem Solving Ability

INTRODUCTION

Mathematics is a field of study that focuses on logical thinking processes that are based on certain patterns and rules. With its important role in education, mathematics contributes to guiding students to improve their ability to think in a critical way, so that students can solve various problems to be faced in their daily lives. Mathematics is the study of numbers, patterns, and well-organized structures (Nur'aini & Harahap, 2017). Thus, according to (Sariningsih & Purwasih, 2017; Isnaeni & Hidayat, 2018) said that with mathematics education can encourage motivation for the development of society, which can be seen from the latest advances in modern technology. Therefore, as a result, learning mathematics well is one of the first steps

to mastering its concepts. The ability to solve mathematical problems is one of the alternative competencies with the intention to be improved in learning mathematics. Skills in solving problems is the purpose of the target to be learned by students in learning mathematics. (Utami & Wutsqa, 2017;

Hanifah & Nuraeni, 2020). In addition, self-confidence has a big role in student success, because self-confidence can encourage motivate students to achieve success (Ananda & Wandini, 2022). Problem solving is the initial ability for students to master in doing math learning. (Hidayat & Sariningsih, 2018; Rachmawati & Adirakasiwi, 2021). Through the ability to solve mathematical problems can help reduce student anxiety in learning mathematics (Putri & Miatun 2023). This proves that students' ability to solve problems has an important role.

One of the goals to be achieved in learning mathematics at the junior high school level, including aiming to provide students with logical and critical reasoning skills, as well as the ability to solve everyday problems (Setiawan & Sari, 2023). Problem solving involves skills to be able to understand the problem, design in making mathematical forms, solving mathematical forms, also interpreting the solution obtained (Razak et al, 2018). Straight line equation is one of the mathematics topics that is included as a prerequisite in order to understand the concept of the next mathematics material (Isnaini & Hidayat, 2018). Straight line equations are not only important in terms of concepts, but also relevant in everyday life, because it allows students to understand the relationship between graphical representations in the coordinate system, including one of the concepts that play a major role in learning mathematics. The topic of straight line equations is a topic in junior high school, which plays an important role in helping students understand and analyze the relationship between relevant variables, to train these abilities by directly involving real life, such as data analysis and linear calculations. As for understanding problems, making into mathematical form, solving mathematical forms and also interpreting alternative problems including all parts of problem solving. Mbembok et al (2017) stated, learning that emphasizes skills and creativity in solving problems gets the main focus, because it has an important role in developing students' intellectual potential.

However, the reality in the classroom emphasizes that almost most students face difficulties in solving problems from problems related to mathematical problem solving, especially related to the material of straight line equations. The ability to solve mathematical problems is still not optimal, because students are not accustomed to using systematic strategies and make students tend to be confused or stopped in the middle of the problem solving process, in accordance with the findings of the results of research submitted by Utami and Wutsqa (2017), students are still confused in understanding the steps of solving, this difficulty occurs because the learning approach tends to be theoretical and lacks linking concepts with real situations, so that students feel the concept is abstract and difficult to apply in everyday life. In addition, students' proficiency in solving math problems is still low. Most students need intensive guidance and motivation, while their learning outcomes are still not optimal, with many not yet demonstrating the ability to learn independently. Thus, it is necessary to apply a more relevant and contextual approach so that students can relate this material to their real experiences (Hidayat & Susanti, 2023).

One of the main subjects of junior high school mathematics is the use of straight line equations in learning. This research concentrates on the problem of solving problems. However, according to some previous researchers Setyaningsih and Firmansyah (2022) showed that the low mathematical problem solving ability of junior high school students when solving straight line equations, this is due to the inability of students to solve problems appropriately, so the answers they give are often not in accordance with the instructions requested. In line with the results of Anugrah's research, (2023) describes that the low initial ability, to solve math problems students must first master the necessary material, then the core subjects, then calculate, and finally must master mathematical problem solving. In line also

according to Andari et al (2024) where the research conducted shows that by applying methods from the problem-based learning model (PBL) through the TaRL approach has the potential to improve students' competence in solving problems on straight line equation material. Also according to the researcher Solihat et al (2022), that the results of his research show the ability taken by students to solve math problems, given through the RME learning form model can be supported by the use of geogebra on the material of straight line equations is very better results, when viewed in students using conventional learning models with those that do not use geogebra support.

Because the use of the school cooperative context provides a more thorough and relevant learning experience, school cooperatives are easier to implement in various types of schools without the need for technology, making them more open and accessible to many students. Therefore, school cooperatives are more effective in developing practical and social skills that are important in everyday life.

It can be concluded that until now no previous research has been found that specifically discusses the topic of straight line equations using the context of school cooperatives, where through the use of the school cooperative context, mathematical concepts are directly linked to practical activities that involve students in real social situations, so that learning becomes more relevant. As for researchers using the context cooperatives as a strategic step to create more interesting and meaningful learning. The use of the school cooperative context allows learners to see how mathematical concepts, such as straight line equations, can be used to solve real problems, students tend to be more motivated when they see the direct relevance between classroom learning and the real world. This approach in addition to strengthening students' understanding of concepts, also to improve the ability for students to think critically. Based on the description above, researchers are interested in examining the mathematical abilities of SMP Negeri 2 Sungai Keruh class VIII students of Musi Banyuasin Regency in solving problems on straight line equations using the context of school cooperatives, learning is expected to strengthen students' understanding of concepts, hone practical skills, and instill social values such as responsibility, collaboration, and the ability to make decisions that are applicable in real life.

METHOD

This research belongs to the type of qualitative descriptive research, with data obtained through written questions as well as interviews to reconfirm the process of working on problems, with the aim of understanding how students think related to the ability to solve students' mathematical problems and their level of independence in learning. The research subjects began with a small group trial consisting of 6 students in class VIII at SMP Negeri 2 Sungai Keruh chosen because they had a sufficient mathematical foundation, balanced gender distribution, and diverse initial abilities, so that it was representative to measure the effectiveness of the approach, although generalization of the results still requires further research. After that, the research was continued in the large group involving 30 students.

Before starting the research, the first step was to determine the learning context that would be used. Next, the researcher compiled a student activity sheet that contained two learning activities. This student activity sheet was designed to be applied to 30 students from class VIII at SMP Negeri 2 Sungai Keruh as research subjects. Before use, the activity sheet was first reviewed by lecturers of the Master of Mathematics Education Program to obtain suggestions and input. After being corrected according to the recommendations, the questions were tested on the research subjects.

The study aims to describe students' abilities regarding matters related to solving mathematical problems at the junior high school level. This approach is appropriate for measuring students' problem solving ability because it uses a real context that trains students to identify, formulate, and solve problems directly, while honing critical thinking skills. The

data collection method applied is a test which includes two problem activities in learning activities by loading several problems on the topic of Straight Line Equation material using the school cooperative context and conducting interviews. The questions were prepared based on the learning objectives (TP) of the mathematics subject to be carried out as well as the review of experts. The research method used was a test to measure students' ability to solve problems in accordance with the performance of solving mathematical problem solving. In addition to tests, the method used in research is also in the form of interviews. Interviews were conducted by asking questions related to the problems to be identified, so that clear results could be obtained and easy to describe in detail to explore more in-depth information related to students' mindset, understanding, and experience during the learning process. This technique allows researchers to obtain qualitative data that cannot be revealed only through written tests, such as the reasons students choose certain strategies, the difficulties they face, and the ways they overcome problems. Interviews also help researchers understand the context of student behavior in learning, so that the research results become more comprehensive and reflect the actual conditions. This technique, it is used because it can capture the emotional, motivational and reflective aspects that are important in learning.

This research was conducted by using two methods to collect data, namely written questions as well as interviews. This research uses triangulation techniques to collect data, namely by testing students' mathematical problem solving skills through mathematical problems, followed by interviews to understand students' explanations for the answers given. The written questions are carried out in the form of asking students to work on the questions on the test, which intends to be able to evaluate students' ability to solve problems until they reach the final result. Meanwhile, interviews were conducted with the aim of extracting more information in relation to the methods used, as well as the obstacles students face in the process of solving problems. The final stage of the research involved processing and analyzing the data obtained from the results of written questions and interviews. The data obtained was then analyzed descriptively by explaining and describing the ability to solve students' mathematical problem solving, so that conclusions were drawn based on the research conducted. The data that has been obtained based on the test results, then processed using the percentage Formula 1 (P= percentage; f = frequency of student answers; n= total score).

$$P = \frac{f}{n} \; x \; 100 \; \% \qquad \text{(Formula 1)}$$

From the results of the analysis, then calculated student achievement with the following criteria for student ability (Table 1), adopted from the criteria for skill levels in solving mathematical problems (Wahyudi, 2023).

Table 1 Criteria for Level of Mathematical Problem Solving Ability

Range	Mathematical Problem Solving Ability Reference Criteria
81-100	High
65 - 80	Medium
0 - 64	Low

There are several steps or stages in problem solving according to experts (Raudho et al., 2020). One of them is according to Polya. The stages of problem solving according to Polya's steps include:
   (1) Understanding Problem. At this stage, students need to identify information that is already known as well as what is asked in the given problem.
   (2) Devising plan. At this stage, students must design a strategy or plan by turning the problem into a mathematical model.
   (3) Carrying out the Plan. At this stage, the actions taken depend on what was planned in

the previous stage.
(4) Looking back. At this stage, students need to check the results obtained and ensure that the answers found are correct, then make conclusions. (Yuwono et al., 2018).

RESULTS AND DISCUSSION

The research conducted intends to describe students' understanding ability in mathematical problem solving in class VIII for mathematics learning on the topic of straight line equations. In the study, students were given a test designed with two main learning activities. The activities included questions designed to test students' understanding of straight line equations, using the context of school cooperatives to make learning more relevant and meaningful.

Development Procedure

This analysis aims to provide an in-depth illustration of students' capacity to solve problems as well as their views regarding the learning process that has been carried out. Based on the indicators of the steps taken in the process of problem solving ability, researchers designed scoring guidelines to determine the classification of students' ability levels. The results of the classification are shown in Table 2.

Table 2. Criteria for Level of Ability in Solving Mathematical Problems

Range	Mathematical Problem Solving Ability Reference Criteria	Frequency	Percentage
81 - 100	High	8	27 %
65 - 80	Medium	15	50 %
0 - 64	Low	7	23 %
Total		**30**	

Problem 1

The explanation of the work results from the activities carried out by students as well as the results of the interviews will be explained in detail in the following section.

Figure 1. Problem 1

Figure 1 shows the problem form of problem 1 regarding straight line equations. Where there are 4 problems given. In problem (1) students are asked to make a table or other method that shows the relationship of the development of savings from day to day, in problem (2) students are asked to draw it on the cartesian plane by connecting the points, in problem (3) students determine what graph is obtained, and in problem (4) students must find how many

days it takes to reach the required amount of savings. All the problems in problem 1 were answered by students who used the material information already provided.

The test was given to 6 student subjects representing 30 students namely AS, ZDE, MNS, CWS, MP and NAP representing various levels of ability heterogeneously. In learning activities students work on the problems given individually. The following is a description of the results of student answers from the test work complemented by an explanation of the results of the interview to understand more deeply their responses and strategies in completing the task.
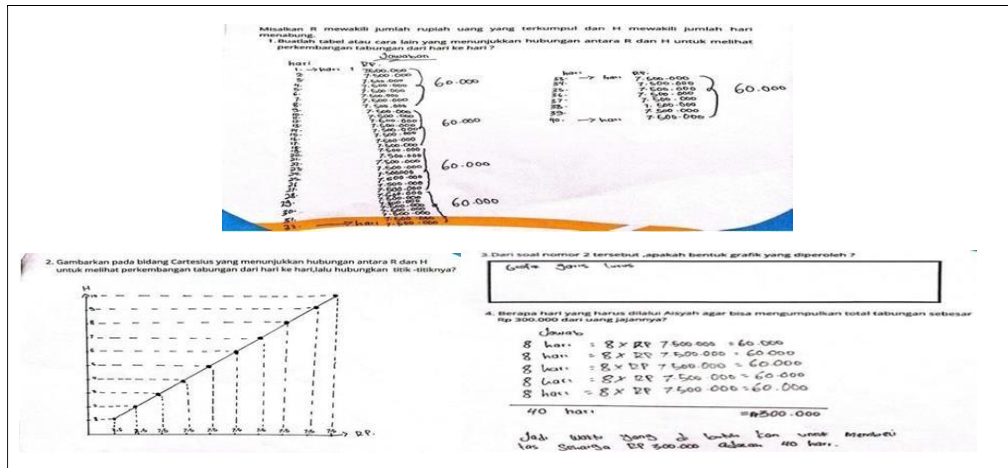

Figure 2 AS student's answer

In Figure 2 illustration, AS students working on problem solving in problem number 1 experienced errors in analyzing the understanding of problem solving that had been given. This can be seen from the explanation of the answers done in problem number 1, causing question number 2 the coordinate points are also incorrectly incorrect, but for questions number 3 and 4, they can solve the problem correctly based on their thinking. Based on further analysis using Polya's Theory, students still tend not to understand planning strategies in problem solving and have not been able to implement the strategies that have been designed. As a result, some students' final answers are less precise.

Based on interviews conducted, with AS students revealed the reason that by calculating dividing half of the Rp15000 pocket money divided by 2 obtained Rp 7500 per day collected, so that the amount could be calculated, then AS wrote the same amount per day by grouping into 8 days, so that every 8 days as much as Rp 60000 could be collected. Student AS is still confused about analyzing the problem, but with answer number 1 he thinks he can easily classify for the answer to question number 4.
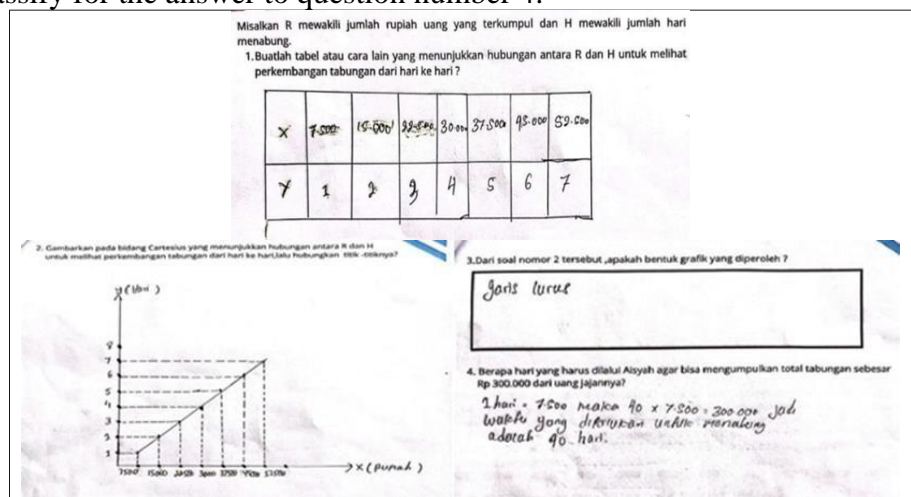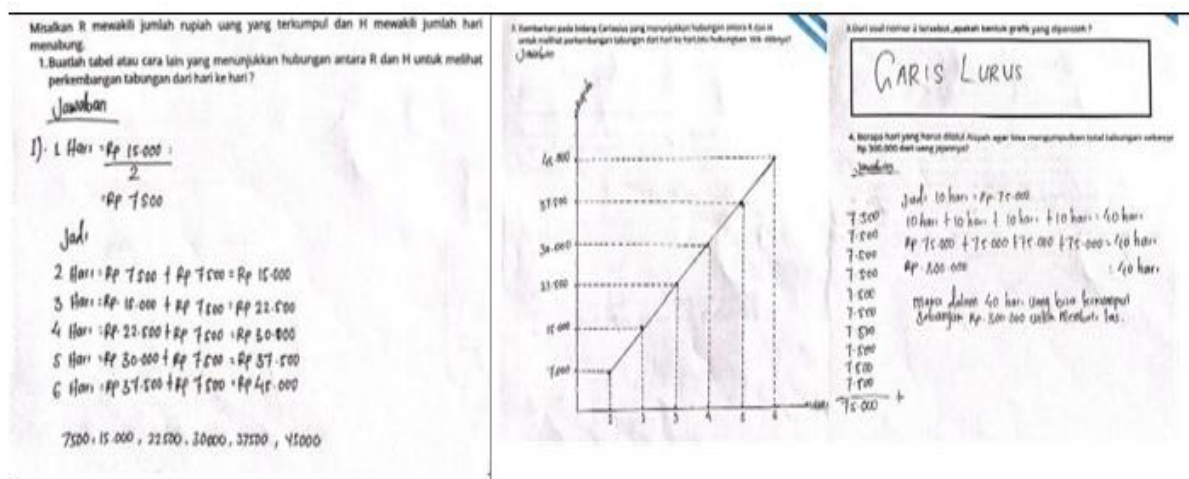

Figure 3. Student ZDE's answer

For the illustration in Figure 3, it seems that ZDE students solve question number 1 by making a table of x and y, where x is shown as the amount of money and y as the day. ZDE students were able to answer the question correctly, even though they immediately wrote the answer without showing the steps of completion. In problem number 2, describe the coordinate points in the cartesian plane correctly and make information on each x and y axis. In problem number 3 students can understand the graph they made. Furthermore, for problem number 4, ZDE students solve it by directly multiplying 40 days with the money saved per day so that from the calculation the amount is obtained according to what is asked, namely Rp.300,000. In this problem 1, ZDE students show problem solving skills.

Based on the interview results, ZDE students explained that the use of horizontal tables made problem solving more efficient. With this format, ZDE students can easily calculate the results they are looking for on each day. For problem number 4, ZDE students stated that the step could be solved by using the answer from problem number 1, where the result of saving for 7 days amounted to Rp 52,500 multiplied for 6 weeks (42 days).However, the calculation results showed an excess of Rp 15,000. To adjust the bias to reach a total of Rp 300,000, ZDE students subtracted this amount from the average money collected for 2 days. Thus from a total of 42 days subtracted by 2 days obtained 40 days, ZDE students calculate that it takes 40 days to collect Rp 300,000. The strategy used by student ZDE shows good understanding.

Figure 4. MNS Students' Answers

For illustration 4, it seems that MNS solves question number 1 by dividing the amount of savings per day by 2, so that the daily savings of Rp. 7,500 is obtained, then adding the amount of money per day obtained with the amount of savings of Rp. 7,500. Then add the amount of money per day earned with the amount of savings of Rp 7,500 per day until the next day. Where from the answer it can be seen that the strategy to answer can form a number pattern. MNS students are able to answer the questions they get correctly. In problem number 2, describe the coordinate points in the cartesian plane correctly and make a description on each x (representing days) and y (representing rupiah) axis. In question number 3 students can understand and understand the graph they made. Furthermore, for problem number 4, MNS students solve it by adding up the money every 10 days so that the result of Rp 300,000 is collected for 40 days In this activity 1, MNS students have shown good problem solving skills.

Judging from the results of the answers and interview results, MNS students already understand and understand the problem. He was able to write down the information in the problem to solve the problem and get the right results, and he was also able to draw conclusions based on the calculations that had been done. Based on the results of the interview, he already understood how to check whether the calculations made were correct with the strategy he used.
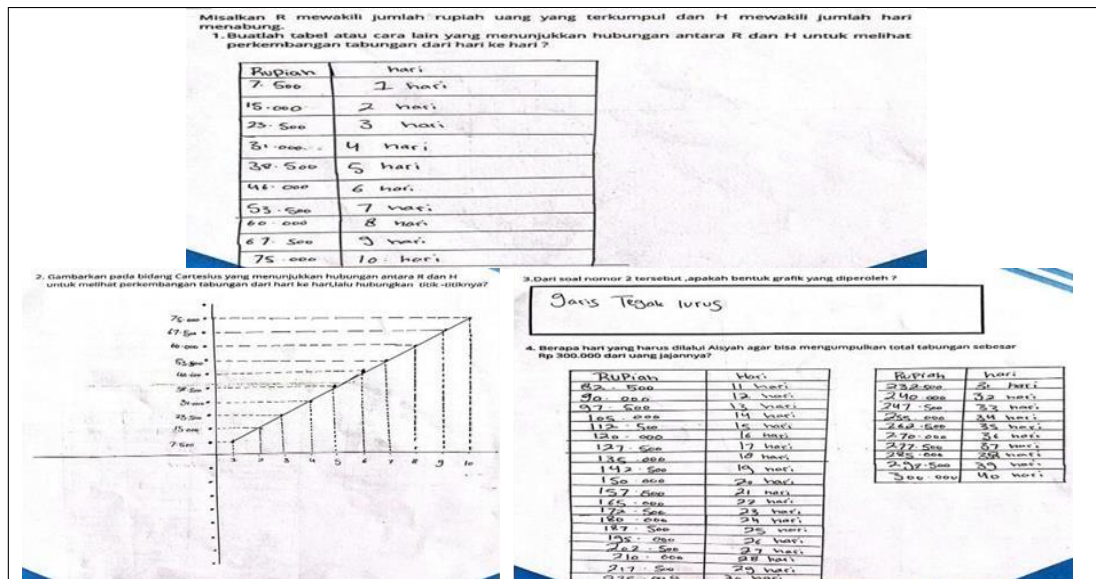
Figure 5 Student CWS Answer

In the illustration of Figure 5, it seems that CWS solves question number 1 by using a table in the form of two columns, namely rupiah and days, but CWS students for the first and second days the results they get are correct, but for the 3rd and subsequent days get less precise results so that it has an impact on the next results. For question number 2 there is again a relationship between the points of the 2 axes that is not correct because In question number 3, there was a mistake from CWS students in understanding the shape of the graph formed where they answered the perpendicular graph. Here it can be seen that MNS students do not recognize straight lines. In problem number 4, CWS students solve it still by using a table but the results they get are correct even though there is no way to solve it. In this problem 1, CWS students lack problem solving skills.

Based on the results of the interview, CWS students said that they faced difficulties in solving the problem, so they lacked concentration and experienced errors in their calculations because they still did not understand the problem.
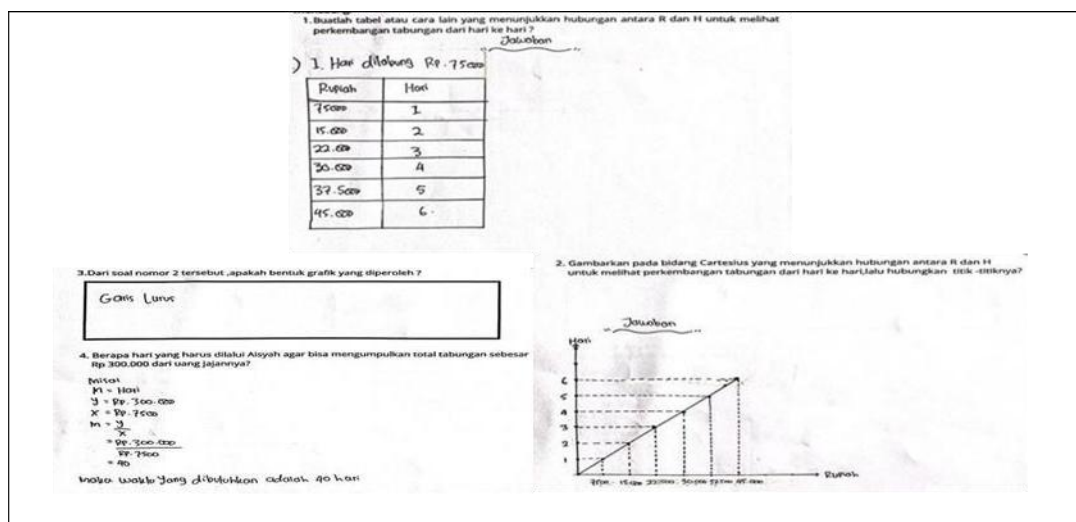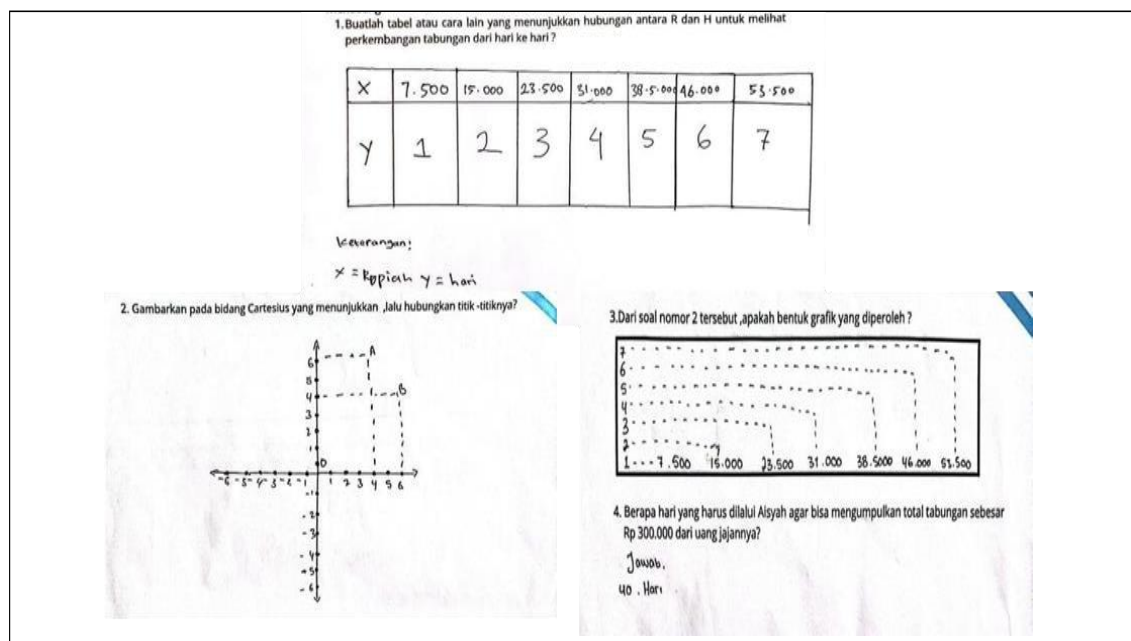

Figure 6 Student MP's answer

For illustration 6, it looks like MP solved question number 1 by using a table in the form of two columns, namely rupiah and days, just like CWS's answer, but the results he got were correct. In question number 2, it can be seen that the answer made by MP students is the

same as that done by ZDE students drawing graphs. For question number 3, students can understand and understand the graph they made. Furthermore, for problem number 4, MP students make an assumption and use it in division, by dividing the money to be collected by Rp. 300,000 with a savings of Rp. 7,500 per day so that the result is 40. During the interview, the reason MP used the table was because it was more understanding in solving the problem and made it easier to make graphs on the cartesian plane. Based on the results of the answers and interview results, MP students seem to understand the problem and can also answer it correctly.

Figure 7 Student NAP's Answer

In the illustration of Figure 7, it seems that NAP students solve question number 1 by using a table in the form of two rows, namely rupiah and days with x (rupiah) and y (days), but CWS students for the first and second days the results they get are correct, but for the 3rd and subsequent days get incorrect results so that it has an impact on the next results. The answer error made is the same as the CWS student's answer. For question number 2, there was again a relationship between the points of the two axes that was not correct due to the influence of the previous answer, seen in the picture made. In question number 3, there was a mistake from NAP students in understanding the problem, because what was made was the line connecting the points not in accordance with the instructions of problem given. Here it can be seen that NAP students do not recognize straight lines. In problem number 4, NAP students solve it by answering directly without any steps to solve it, even though the answer they make is correct. In problem 1, NAP students lack problem solving skills.

The results of interviews with NAP students stated the reason that they had difficulty in solving the problems given because they had never gotten a problem like the one given. It appears that there is still inaccuracy in solving the problems given. This is in line with the results of research (Suryani, 2020), that students who are not used to getting non-routine problems will have difficulty working on them.

Problem 2

Figure 8 displays the problem form of problem 2 activities that must be done, which directs students to analyze and determine with almost the same problem but different problems. In addition, students describe the solution strategy in working on the problem based on the material information that has been provided. So that it can provide an in-depth understanding of their thought process in solving problems.

Figure 8 Problem 2

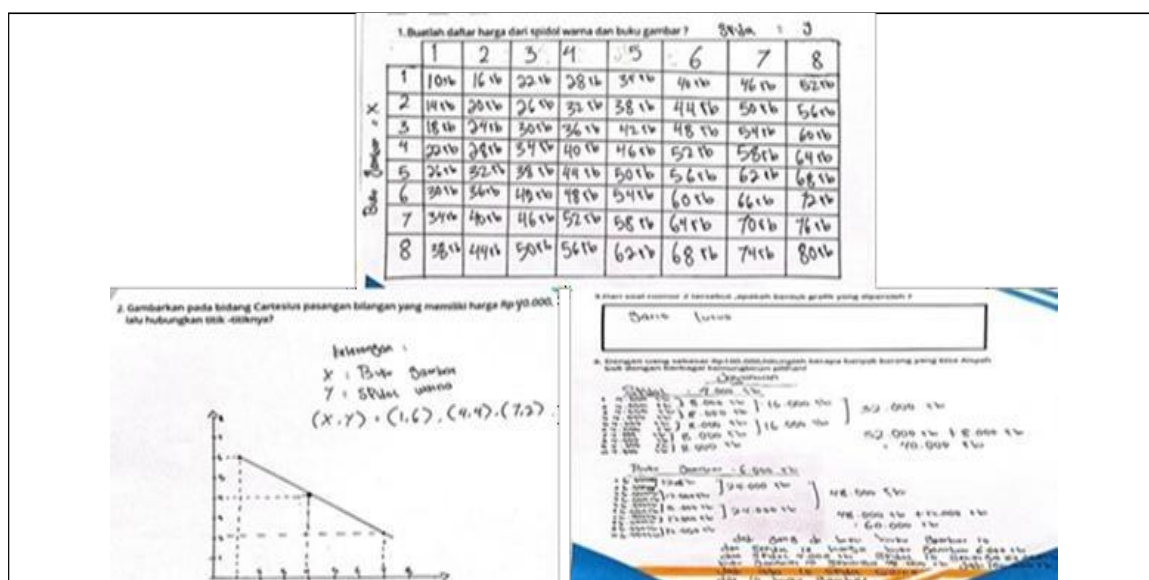In the illustration in Figure 9, it seems that AS students solve question number 1 by making a model on the x and y axes using a chess table. AS students are able to answer the question correctly, even though they immediately write the answer without showing the completion steps. In question number 2, the student uses the equation and immediately determines the coordinate points that meet the price criteria there are 3 coordinate points (1,6), (4,4) and (7,2) obtained but there is no proof, then draws it on the coordinate system. In question number 3, students do not experience problems because they can refer to the graph that has been made from the previous answer. For question number 4, AS students use a strategy by grouping every 2 items of equipment to calculate the total cost. From the calculation, the student managed to determine that with Rp 100,000, he could buy 10 color markers and 10 drawing books. In this activity 2, AS students show good problem solving skills through effective strategies.

Figure 9 Student AS Answer

From the results of the interviews conducted, information was obtained that AS students explained that the use of tables really helped them to understand the prices needed. To work on problem number 2, AS students use the table from problem number 1, so that the table immediately shows the appropriate price amount. In addition, the strategy of grouping prices per 2 items made it easier for him to estimate the amount of money and goods needed to stay within the available budget. This strategy reflects structured and logical thinking in solving problems.
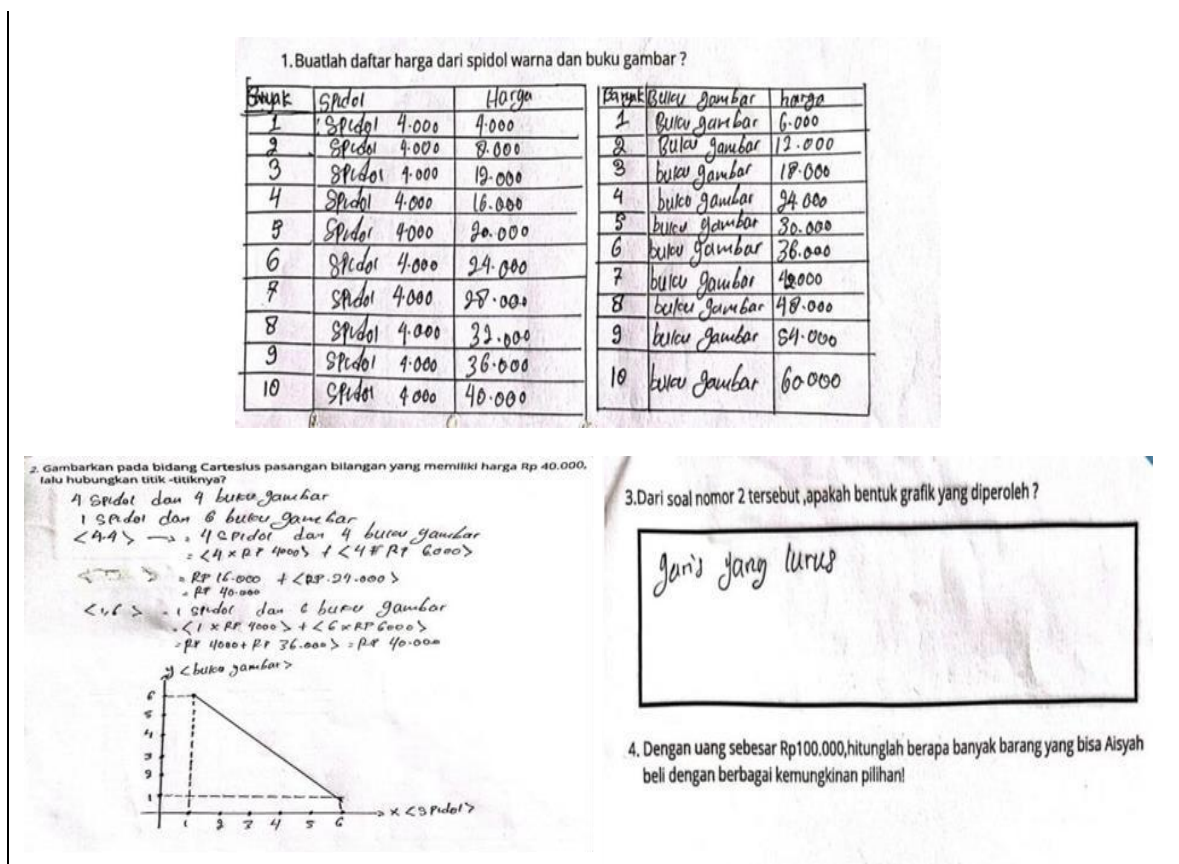

Figure 10 Student ZDE's Answer

In the illustration in Figure 10, it seems that ZDE students solve question number 1 by making a table again and writing the number of items, the name of the item and the price based on the number of items. ZDE students are able to answer the questions they get correctly, even though they immediately write the answer without showing the steps of completion. In question number 2, the student took 2 points (4,4) and (1,6) which he got by using the proof of the solution of the answer obtained, then described it on the coordinate system. In question number 3, students did not experience any problems because they could refer to the graph that had been made from the previous answer. For question number 4, ZDE students have not finished working on it In this activity 2, ZDE students show problem solving skills even though they are limited by time constraints to complete.

Based on the results of the interview, ZDE students explained the reason that in answering the problem he preferred to use a table because according to him it really helped him to be able to immediately check the results obtained and was more effective to use, for problem number 2 ZDE students said that by looking at the table of answers to the previous problem made it easier for him to calculate the total amount of the price sought by the coordinate points, and for the next problem ZDE students said they were slow in solving the problem so that the last problem was not completed.
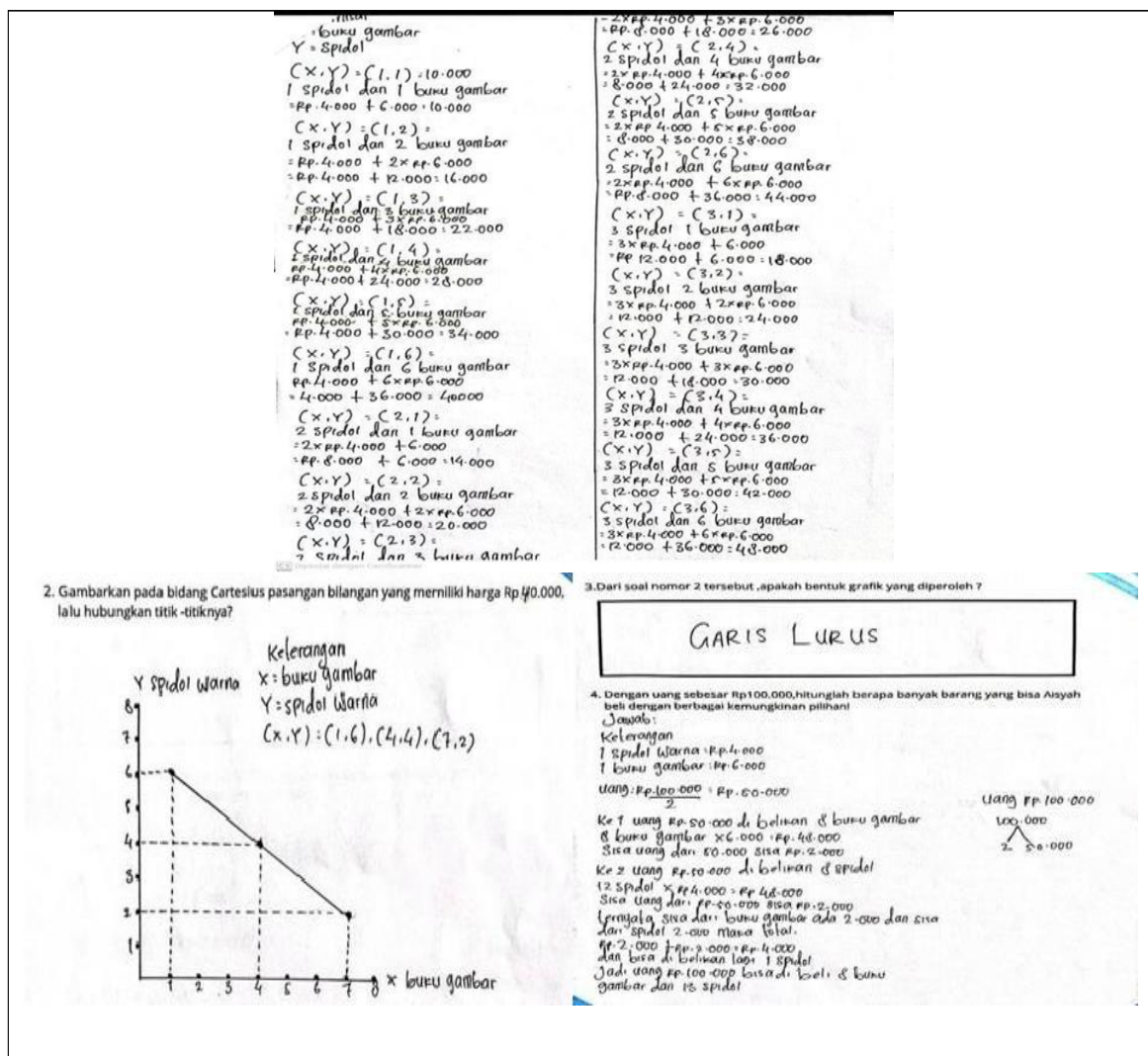
Figure 11 Student Answer MNS

In the illustration in Figure 11, it seems that MNS students solve question number 1 by finding one by one by proving the results by using the permutation of each point used to represent the number of items of goods. MNS students are able to answer the questions they get correctly. In question number 2, the strategy used by MNS students is the same as ZDE students, but MNS students take the 3 points they get, namely (1,6), (4,4) and (7,2) which they get by using the proof of the solution obtained, then describe it in the coordinate system by writing information on each axis. In question number 3, students do not experience problems because they can refer to the graph that has been made from the previous answer. For problem number 4, MNS students solve it by dividing the money into 2 so that it is equal and solving it. In this problem 2, MNS students show good problem solving skills.

Based on the interviews conducted, MNS students explained the reason that in answering the problem by using proof of coordinate points (representing items of goods) made them able to calculate the exact results obtained. So that the next answer in number 2 can see the points obtained to make graph with the conditions requested. For question number 3, MNS students stated that from the picture number 2, it can be seen that there is a straight line from the points. For number 4, MNS students divide the money equally with the aim of how much money can be spent to buy if the same amount of money, so that they get that from the amount of money there is an excess of remaining money from each item of Rp 2,000 each, The next solution is that the excess money from each item is added up and transferred to what can be bought back so that it can be enough Rp 100,000 according to him. The results obtained turned out to be able to spend again to get a color marker.
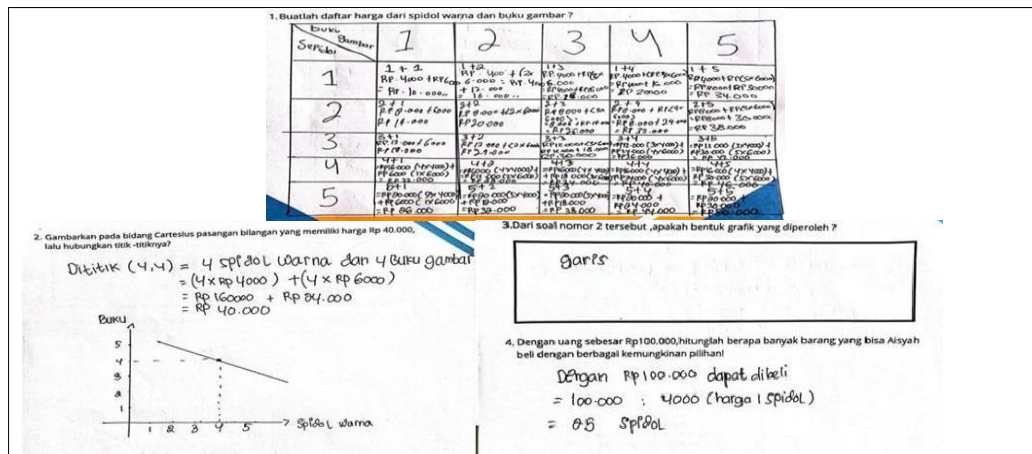
Figure 12 Student CWS Answer

In the illustration in Figure 12, it seems that CWS students solve question number 1 by using a chess table. CWS students are able to answer the question by multiplying the number of items with their prices then summing them up and getting the correct result, according to their own way. In problem number 2, students use an equation and immediately determine the coordinate point that meets the price criteria by taking 1 coordinate point (4,4). Then draw it on the coordinate system. In problem number 3, CWS students only write the line of the graph created. For problem number 4, CWS students use a strategy by spending Rp 100,000 to buy markers only. In this problem 2, CWS students show problem solving skills with their strategies.

Based on the results of the interview, student CWS explained that the use of tables really helped him to understand the price needed. To work on question number 2, CWS students use the table from problem number 1, so that from the table it is immediately seen that according to him the number of prices corresponding to Rp 40,000 is at point (4,4). Because he did not understand that the graph he made was a straight line equation, CWS students thought that the graph he made was a line.
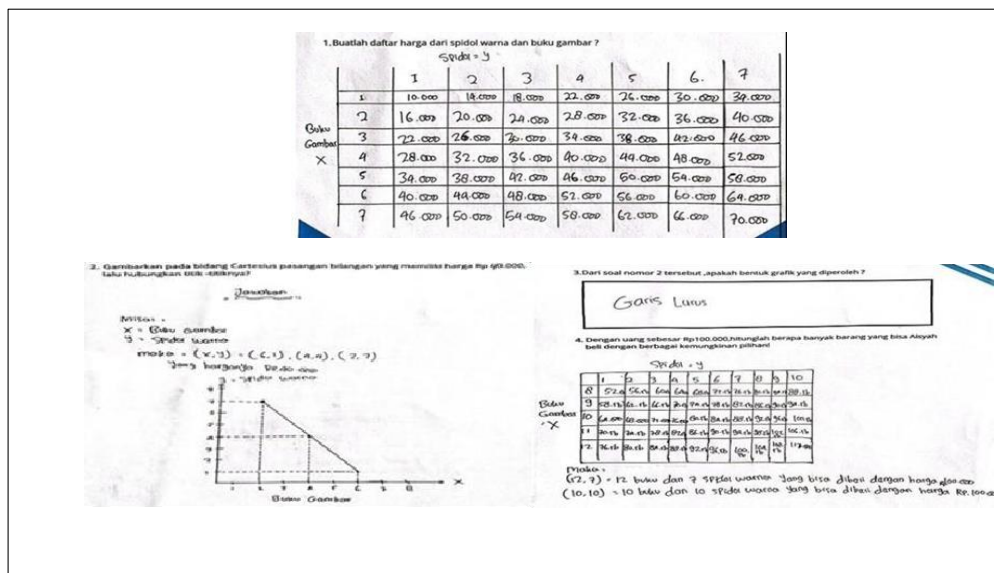

Figure 13 Student MP Answer

In the illustration in Figure 13, it seems that MP students solved question number 1 by using a chess table as done by AS students. MP students were able to answer the question correctly, even though they immediately wrote down the answer without showing the steps solution. In question number 2, students use an equation and immediately determine the

coordinate points that meet the price criteria there are 3 coordinate points (6,1), (4,4) and (2,7) obtained from the table in question number 1, then draw them on the coordinate system. In question number 3, students do not experience problems because they can refer to the graph that has been made from the previous answer. For question number 4, MP students

used a strategy by using the table continued from the answer to question number 1 to calculate the total cost. From the calculation, the student managed to determine that with Rp 100,000, he got 2 points, namely (12,7) and (10,10). So it can buy 12 drawing books and 7 color markers and 10 color markers and 10 drawing books. In this problem 2, MP students show the ability to solve good problem solving with effective strategies.

Based on the interview results, the MP student explained that the use of the table really helped him to understand the price he was looking for. To solve question number 2, AS students used the table from problem number 1, so that the table immediately showed the appropriate price amount. This strategy reflects structured thinking in solving the problem.

Figure 14 Student NAP's Answer

In the illustration in Figure 14, it seems that student NAP solved question number 1 is less precise by writing the known from the problem, so that it has an impact on the next result. The answer mistakes made are the same as his answers in activity 1. For question number 2, NAP students still make the cartesian plane. And that happened also in number 3, where the answer he made was a cartesian graph according to the drawing he made in the previous problem. In problem number 4, NAP students solve it using the strategy they use by using the same number of items to buy and get the correct answer. In this problem 2, NAP students' ability in problem solving is still lacking but has undergone a small change because they experienced the problems in problem 1. Judging from the results of the answers and the results of the interview, NAP students revealed the reason that initially they did not understand the problem but in problem 2 they had begun to understand the meaning of the problem. According to NAP, he tried to find the solution by buying items through the same amount first so that he could better understand working on the problem. He noted the information contained in the question, although not entirely. The item she was looking for was visible and got the right result.

Discussion

Based on the analysis of the data obtained, it is concluded that students have shown a fairly good ability in solving problems, which is in the moderate category. Students' abilities are reflected in their understanding of the problem, preparation of a solution plan, implementation of the plan, and making conclusions systematically. Students' ability to understand the problem is influenced by by the mastery of concepts that are still low, erroneous in analyzing the understanding of the given problem solving. Student errors at this stage are due to limited understanding of material related to straight line equations, being the basis for learning process in line with Yuwono et al (2018). According to Purba and Lubis (2021), George Polya thinks that problem solving is an attempt to find a way out of a difficulty in order

to achieve a goal that cannot be achieved immediately. George Polya also provides four ways or procedures in problem solving. This problem solving has a sequential method and procedure to make it easier for students to solve problems in order to avoid views that are often wrong in choosing a solution strategy. According to Sriwahyuni, K & Maryati, I. (2022) said that students have difficulty solving problems because students do not have the ability to solve mathematical problems, due to the limited ability of students who are still low in solving mathematical problems due to lack of conceptual understanding and learning experiences that are less contextualized. As for low category students (23%), the steps that need to be taken are to provide more assistance, use visual aids, and practice problems gradually. In addition, providing positive feedback and encouragement is also very important to increase their confidence in learning.

Related to making a solution plan, the main factor that causes is the use of creativity in problem-solving strategies. Therefore, all parties must pay serious attention to students' ability to solve mathematical problems. Where the ability of students who are still quite low to solve mathematical problems in learning is caused by several things, one of which is the lack of ability to understand the problems given, because students are more accustomed to working on routine problems. This is in line with what Amam (2017) stated, the ability to solve mathematical problems refers to the ability of each individual to solve non-routine mathematical problems, to present problems in the form of mathematical problems, whether they are based on text or in contextual presentation, in order to be able to assess the ability of students to solve these problems.

Students' success or failure in implementing the solution plan is strongly influenced by their level of ability and skill in applying formulas and procedures appropriately and effectively. This is in line with Hayani (2021), basically, anxiety or fear of failure in learning mathematics should be an encouragement for students to learn better, encourage them to be more open, and ask questions if something is not understood, so that they can achieve satisfactory results.

At the rechecking stage, there are students who have successfully solved the problem by using the way according to him and there are still students who have not been able to work on the problem, it appears that some students' answers directly answer the problem where they do not perform calculations when solving the problem, there are students who are able to understand the problem and solve it according to the correct steps, but do not repeat the check, because the results become less precise. This is in accordance with Sunardiningsih et al (2019), students do not know the formula to be used and do not know the calculation operation to be used where they experience process skill errors, namely students do not know the procedures or steps to be used. Apart from that, some of the students were able to understand the problem and solve it according to the correct steps, but did not double-check so that they obtained inaccurate results. This is in line with Elita et al (2019), that students have difficulty solving story problems, asking questions, making solution steps, and solving the problems given.

CONCLUSION

Based on the results of research and analysis, there are 27% of students categorized as high ability, 50% of students with moderate ability and 23% of students with low ability to solve problems. In general, this situation illustrates that students' ability to solve mathematical problems is at a moderate level. These results illustrate that students' ability to solve mathematical problems can be improved through a more contextualized direct approach, where problem-based learning helps students understand mathematical concepts by linking theory to real situations, encouraging students to think critically in solving problems directly by using problems that are very relevant in everyday life. Research by integrating real-life contexts can support the development of students' problem-solving skills, and trigger the growth of students' critical and creative thinking.

RECOMMENDATION

It is hoped that this research can be useful as a means of reflection for teachers in trying to improve students' mathematical problem solving skills. In addition, through the existing findings, the researcher proposes that further research explore such as using digital cooperative-based technology with various approaches or strategies that can be used to develop students' ability to solve mathematical problems, both through a more applicable context and the development of innovative and contextualized teaching methods. With the results obtained fromthe findings obtained in this study, hopefully it can be useful for more efficient mathematics learning practices, related to the demands of students in the future

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