

Analysis of numeracy literacy skills in elementary school students

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Received: 07 November 2023 / Accepted: 22 June 2024 / Published Online: 30 June 2024

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Abstract

This study analyzes students' numeracy literacy skills at the middle level (levels 3 and 4). The research subjects comprised three students from SDN (elementary school) 106831 Bakaran Batu, Deli Serdang Regency, representing varying initial math abilities (high, medium, and low). Student groupings were based on data from mathematics test scores. The research follows a descriptive qualitative approach using Sugiyono's methodology. The research instrument employed was a mid-level numeracy literacy ability test (level 3 and level 4), which included questions assessing cognitive processes related to application and reasoning, as well as interview guidelines. Data analysis techniques involved data reduction, presentation, and conclusion. The study revealed that highly skilled students demonstrated proficiency in level 3 (application) and level 4 (reasoning) numeracy literacy. However, students with moderate and low abilities struggled to understand questions at these levels. Common student errors included failing to record relevant information from the questions, making mistakes in problem-solving processes, and neglecting to document their answer conclusions. The main factor hindering students' ability to answer moderate-level numeracy literacy questions appears to be their lack of familiarity with word problems related to everyday life. Additionally, students have difficulty grasping the relationship between concepts presented in contextual problems.

Keywords: Analysis, Numeracy literacy skills, Elementary school students

How to Cite: Maysarah, S., Armanto, D., Dewi, I., & Saragih, S. (2024). Analysis of numeracy literacy skills in elementary school students. *AXIOM : Jurnal Pendidikan dan Matematika*, 13(1), 52-64. <https://doi.org/10.30821/axiom.v13i1.16006>

Introduction

Mathematics is a fundamental science that plays a crucial role in various aspects of life. It serves as the foundation for understanding other disciplines, including economics, accounting, computer science, physics, and chemistry. Consequently, proficiency in mathematics is essential due to its interconnectedness with diverse scientific fields. In the context of the school of mathematics education, students are expected to solve daily problems by applying critical and logical thinking. This ability to utilize numbers, data, and mathematical symbols in addressing everyday challenges is referred to as numeracy literacy (Lange, 2006)

Numeracy literacy skills among students encompass several key abilities. Firstly, students must be adept at applying mathematical symbols to solve everyday problems. Secondly, they



should be capable of interpreting information presented in various formats, such as charts, graphs, and tables. Lastly, students need to convey numerical and infographic information concisely and clearly (Putri et al., 2021). In essence, numeracy literacy involves processing numbers and data, selecting relevant information, understanding its practical use, and applying it effectively to problem-solving. Recognizing the significance of mastering numeracy literacy, the United Nations Educational, Scientific and Cultural Organization (Unesco, 2006) emphasized that a nation's progress hinges, in part, on the numeracy skills of its citizens. Essentially, numeracy literacy represents a student's ability to comprehend and apply mathematics in everyday contexts (Setya & Purnomo, 2023). Moreover, numeracy literacy is currently essential for students to enhance their knowledge, unlock their potential, and meet the requirements of the Independent Learning Curriculum.

In everyday life, numerous contextual problems necessitate numeracy literacy skills for effective problem-solving. Information acquired from various sources can be conveyed through numerical and graphical representations, enabling students to make informed decisions and arrive at accurate conclusions. Consequently, mastering numeracy literacy is of paramount importance for students. This skill is closely intertwined with mathematics, as it involves the ability to reason using both language and mathematical concepts (Pratiwi et al., 2023).

Numeracy literacy skills constitute a vital component of mathematical literacy. According to Lange (2006), mathematical literacy encompasses several dimensions, including spatial literacy, numeracy, and quantitative reasoning. The Organization for Economic Cooperation and Development (OECD) defines mathematical literacy as an individual's capacity to formulate, apply, and interpret mathematical concepts within various contexts. This proficiency involves not only mathematical reasoning but also the practical utilization of mathematical tools, procedures, and facts to describe, explain, or predict phenomena (OECD, 2014). Numeracy literacy skills are indispensable for students as they navigate and address diverse life challenges both presently and in the future. Assessments such as the Program for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS) gauge students' numeracy literacy abilities. These assessments fall under the purview of the OECD. In Indonesia, the Minimum Competency Assessment (AKM) program, implemented by the Ministry of Education and Culture (Kemendikbud, 2017) evaluates literacy, numeracy, and character development through surveys (Widiantari et al., 2022).

Rosidi et al. (2022) highlighted that the Programme for International Student Assessment (PISA) has delineated six levels of numeracy literacy ability. Specifically, level 1 and level 2 encompass questions related to basic mathematical operations, while level 3 and level 4 involve questions that necessitate students' interpretation skills to assess contextual connections. At the higher end, level 5 and level 6 questions measure reflective competence. Despite these categorizations, students' mastery of numeracy literacy in Indonesia remains a cause for concern. The 2018 PISA results placed Indonesian students' mathematical literacy achievement at the 72nd position out of 79 participating countries, with a score of 379 (OECD, 2019). Additionally, data from the Trends in International Mathematics and Science Study (TIMSS) report underscore Indonesia's challenges in science and mathematics education. In the TIMSS-R-2015 assessment, Indonesia ranked 44th out of 49 countries, achieving a score of 397 (OECD, 2019).

Research conducted by Aryani et al. (2022) reveals that many elementary school children exhibit poor numeracy literacy skills, with some even struggling to read. Curiously, children often perceive mathematics as a subject solely focused on formulas and relevant only within the confines of formal schooling. This perception is particularly pronounced at Simpang Tiga District Elementary School in Aceh Besar. Students frequently express dissatisfaction when presented with questions that bridge daily life contexts and mathematical symbols (as part of mathematical literacy assessments). The root cause appears to be teachers' omission of literacy-based mathematical questions, despite the critical need to cultivate numeracy literacy skills from an early age. Lestari (2019) emphasizes that learning mathematics significantly contributes to a nation's progress, underscoring the vital role of mathematical reading skills for elementary school students.

Moreover, Putri et al. (2021) identified several common errors made by students when answering numeracy literacy questions. These errors include: 1) failing to record essential data information, 2) making mistakes during problem-solving, 3) miscalculating numerical solutions, and 4) neglecting to document conclusions based on the obtained results. Encouraging students to engage with story problems related to everyday life can enhance their numeracy literacy skills.

Numeracy literacy refers to an individual's capacity for reasoning, as defined by Ekowati et al. (2019). Reasoning involves analyzing and comprehending statements by engaging in activities that manipulate mathematical symbols or language encountered in daily life. Expressing these statements can occur through written or verbal means. Numeracy literacy encompasses three key aspects: counting, understanding numeracy relations, and performing arithmetic operations (Perdana & Suswandari, 2021).

Rezky et al. (2022) conducted research revealing that students with low abilities struggled to comprehend the meaning of mathematical problems, leading to a failure to meet the indicators of numeracy literacy proficiency. Meanwhile, students with moderate abilities exhibited unmet indicators, including difficulties in representing and utilizing mathematical symbols. In contrast, students with high abilities effectively applied their mathematical understanding to problem-solving, successfully meeting the numeracy literacy indicators.



Given the aforementioned issues, it is imperative to conduct additional research on the significance of numeracy literacy skills and the challenges students encounter when solving numeracy-related problems. Consequently, the objective of this study is to analyze the numeracy literacy proficiency of elementary school students across different ability levels—high, medium, and low. Furthermore, the investigation seeks to identify the factors contributing to students' struggles in addressing numeracy literacy questions. Ultimately, these findings can serve as valuable recommendations for educators aiming to enhance students' numeracy literacy skills in elementary schools.

Methods

This study adopts a qualitative descriptive research approach and was conducted at SDN 106831 Bakaran Batu, Deli Serdang Regency, North Sumatra Province. The research took place during April and May 2023. The participants consisted of three fifth-grade students, representing varying levels of initial mathematics abilities—high, medium, and low. Student

groupings were determined based on their test scores in mathematics. Additionally, the selection of research subjects was informed by input from the mathematics teacher, who possessed firsthand knowledge of the students' abilities in mathematics.

Table 1. Numeracy Literacy Question Grid

Topic	Cognitive Process	Numeracy Literacy Indicators	Question
Fractions	Level 3 (Implementation)	To carry out procedures correctly and apply the right strategy to solve problems.	<p>Question 1: Look at the following image:</p>  <p>Figure 1. The illustration of a garden image The area of the garden in front of the house is 60 m². 1/6 part is used for the pool. 3/4 part is used for grass and other plants. The rest of the garden is covered with coral stones. Determine whether the following statements are true or false:</p> <p>a. The area of the garden covered with coral stone is 5 m².</p> <p>b. The area of the garden covered with coral stones is larger than the area of the garden covered with grass and other plants</p>
	Level 4 (Reasoning)	Effectively present solutions in real-world and complex situations, presenting different representations and relating them to real-world problems.	<p>Question 2: Mom is making snacks of cookies, sandwiches, and sugar buns.</p>  <p>Figure 2. Illustration of a picture of a dry cake Snacks will be distributed equally to Father, Rendra, and Bagus, but Bagus had eaten 4 pastries, 1 sandwich, and 2 sugar buns first. Does Bagus still get the part? If yes, what and how many treats does he get?</p>

Source: Modification of Numeracy Literacy Ability Indicators (Maysarah & Andhany, 2022)

The research instrument is a numeracy literacy question which consists of 3 questions, each at level 3 and level 4, specifically on fractions. The grid for numeracy literacy questions can be seen in Table 1. Level 3 numeracy literacy questions are questions with applied cognitive processes. Meanwhile, level 4 numeracy literacy questions are questions with cognitive reasoning processes. Data collection techniques in this research were carried out using test and interview methods. After the data was collected properly, the researcher carried out the stages of data analysis, namely: (1) data reduction, (2) data presentation, and (3) conclusion

(Sugiyono, 2016). The data reduction stage was carried out by taking all the answer sheets from students with high, medium, and low abilities. The data presentation stage is carried out by describing students' numeracy literacy abilities in the form of descriptions of the students' process in completing test instruments which refer to indicators of numeracy literacy abilities. The conclusion-drawing stage is carried out in the form of a description based on the data received and has gone through the analysis process.

Stages of data analysis from the test instrument include: (1) Data Reduction, at this stage the researcher collected students' answers to 2 numeracy literacy ability questions, namely level 3 and level 4 questions. Answers were categorized into 3 categories, namely: answers from students with high, medium, and low abilities; (2) Data Presentation, at this stage the researcher examines and analyzes the results of students' answers to the 2 numeracy literacy skills questions. Furthermore, researchers found that there were differences in students' numeracy literacy abilities in answering level 3 and level 4 numeracy literacy questions for students with high, medium, and low abilities. Then, from the results of the student's answers, the researcher conducted interviews with the three students regarding the difficulties the students experienced in answering level 3 and level 4 numeracy literacy questions. Furthermore, the researcher also interviewed mathematics teachers to find out why students had difficulty answering numeracy literacy questions; and (3) Conclusion-drawing, at this stage the researcher found several conclusions regarding students' difficulties in answering numeracy literacy questions. As well as finding conclusions regarding the factors causing students' difficulties in answering level 3 and level 4 numeracy literacy questions.

Results

The research data can be seen from the process of completing students' answers to the numeracy literacy questions given. Clearly, the process of completing the answers of high, medium, and low-ability students in answering level 3 and level 4 numeracy literacy questions will be described as follows:

The Numeracy Literacy of S1 subject with High Ability

Students are asked to answer two questions in question number 1 (level 3) and question number 2 (level 4). The following is an example of the answer to question number 1 as follows:

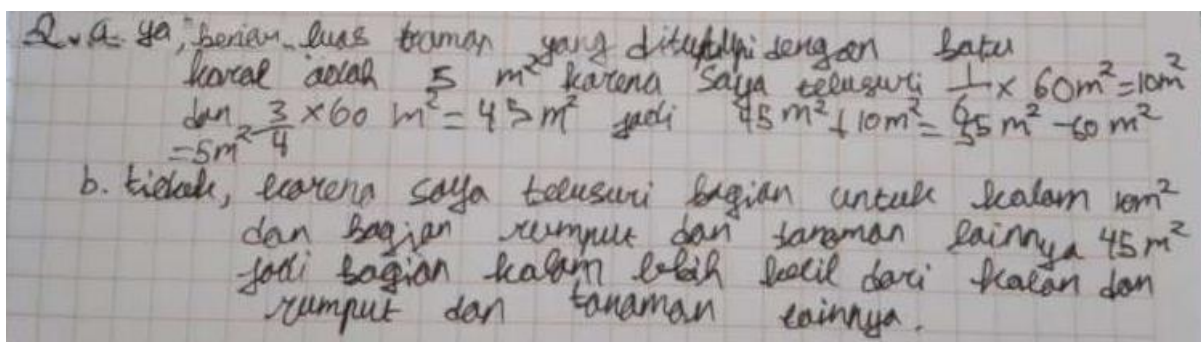


Figure 3. S1 Subject's Answer to Question Number 1

Based on Figure 3 above, it is known that undergraduate students can answer the third indicator of numeracy literacy skills, namely carrying out procedures correctly and applying the right strategy in solving problems. In question number 1.a. S1 subject was able to find the area of the garden covered by coral stone, namely 5 m^2 . The first step is for students to find the area of the garden used for the pool, namely: $\frac{1}{6} \times 60 \text{ m}^2 = 10 \text{ m}^2$. This is the right strategy, even though S1 subject did not write down what he wanted to look for, namely finding the area of the garden used for the pool. Then it can be seen that the second step taken by the S1 student is to calculate the area of the garden used for grass and other plants, namely: $\frac{3}{4} \times 60 \text{ m}^2 = 45 \text{ m}^2$. This is also the right strategy, even though student S1 also did not write down what he wanted to look for, namely finding the area of the garden that would be used for grass and other plants, but here it can be seen that student S1 understood what was asked in the question. The third step, which was carried out by S1 subject, was to subtract the total area of the garden from the area of the garden for the pool the grass, and other plants. Here, S1 subject writes by adding first $45 \text{ m}^2 + 10 \text{ m}^2 = 55 \text{ m}^2$, then subtract $55 \text{ m}^2 - 60 \text{ m}^2 = 5 \text{ m}^2$. This is the correct answer, but the reduction is not correct, what should be written is $60 \text{ m}^2 - 55 \text{ m}^2 = 5 \text{ m}^2$. However, this can be justified because we get the same result that in the concept of area there are no negative areas found. Thus, s1 subject concludes that the statement in question number 1.a is correct, namely the area of the garden covered with coral is 5 m^2 .

Meanwhile, for question number 1.b. S1 subject was also able to answer questions correctly but not quite correctly. Here the subject answers question statement number 1.b. It is not true that the area of the garden covered with coral is larger than the area of the garden covered with grass and other plants, but the reasons and conclusions given are not correct. It is clear here that S1 subject gives the reason that after tracing the section for the pool, it was 10 m^2 and the area of grass and other plants is $[(45 \text{ m})]^2$. Thus, the pool section is smaller than the coral, grass, and other plants. What should be compared is the area of the garden covered with coral stone, namely 5 m^2 , and the area of the garden covered with grass and other plants, namely 45 m^2 .

Thus, from the S1 subject's answer to question number 1 (level 3), namely application. The student was able to carry out procedures correctly and apply appropriate strategies in solving problems. However, in the settlement process, there were still a few errors, and the student was able to give correct answers but the reasons given were not correct.

Below is given the S1 student's answer to question number 2 relating to level 4 numeracy literacy, namely the following reasoning:

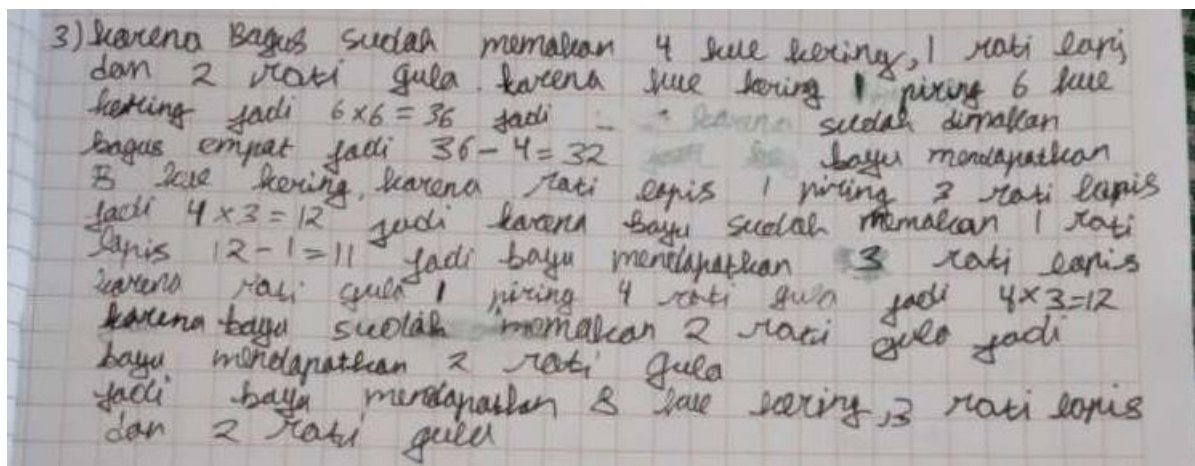


Figure 4. S1 Subject's Answers to Number Question 2

Based on Figure 4, it can be seen that S1 subject has mastered indicators of level 4 numeracy literacy skills, namely: presenting solutions effectively in real-world and complex situations, displaying different representations, and linking them to real-world problems. From these answers, the student can reason well. The questions are long and a little confusing, but the student can represent the answers correctly. The first step that the student takes is to write down the information obtained from the question, namely: Bagus has eaten 4 pastries, 1 sandwich, and 2 sugar buns. The second step, which students take is to count the total number of cookies, sandwiches, and sugar buns from each plate. Students can be seen writing that because 1 plate of cookies consists of 6 cookies, so $6 \times 6 = 36$. Thus, Bagus has eaten four cookies, so $36 - 4 = 32$. Subject S1 immediately gave the conclusion that Bagus got 8 cookies. This answer is correct but does not include a complete solution process. Supposedly, the total number of cookies, namely 36 cookies, should be divided by the number of people you want to share, namely 3 people (Father, Renda, and Bagus). Thus, $36 \div 3 = 12$ cookies/person because Bagus had eaten four cookies, the remaining cookies he got were: $12 - 4 = 8$ cookies.

Next, to count the remaining sandwiches that Bagus had obtained, subject S1 started the first step by counting the total number of sandwiches. Subject S1 wrote that 1 plate of sandwiches consists of 3 sandwiches, which means 4 plates make $4 \times 3 = 12$ sandwiches. Because Bagus has eaten 1 sandwich, then $12 - 1 = 11$. Thus, Bagus gets 3 sandwiches. The answer is correct, but the process for completing the answer is less than complete. Supposedly, after getting the total number of sandwiches, namely 12, subject S1 immediately distributed the same number of sandwiches as the number of participants who would get them, namely $12 \div 3 = 4$ sandwiches/person. Because Bagus has eaten 1 sandwich, the remaining sandwiches Bagus gets are $4 - 1 = 3$ sandwiches.

Next, to calculate the remaining sugar buns obtained by Bagus, subject S1 started the first step by counting the total number of sugar buns. Subject S1 wrote that 1 plate of sugar buns consists of 4 sugar loaves, which means 3 plates become $4 \times 3 = 12$ sugar buns. Because Bagus had eaten 2 sugar buns, so Bagus got 2 sugar buns. The answer is correct, but the process of completing the answer is less than complete. Supposedly, after getting the total number of sugar buns, namely 12 buns, subject S1 immediately distributed the same number of loaves as the number of participants who would get them, namely $12 \div 3 = 4$ sugar buns/person. Because

Bagus has eaten 2 sugar buns, the remaining sugar buns that Bagus gets are $4 - 2 = 2$ sugar buns.

The conclusion given by subject S1 is also correct, namely that Bagus got 8 pastries, 3 sandwiches, and 2 sugar buns. However, there was a slight mistake made by subject S1, namely writing the name Bagus as Bayu. Overall, subject S1 can master level 4 numeracy literacy skills, although there are still some mistakes made in the process of completing answers.

Description of the Numeracy Literacy Ability of S2 Subjects who have Medium Ability

Students are asked to answer two questions in question number 1 (level 3) and question number 2 (level 4). The following is an example of an answer from a master's student who has moderate initial mathematics abilities to question number 1 as follows:

Level: 3
2) $60 m^2 \times \frac{1}{6} = \frac{60 \times 1}{6}$
 $= \frac{60}{6}$
 $= 10 m^2$
 $60 m^2 \times \frac{3}{4} = \frac{60 \times 3}{4}$
 $= \frac{180}{4}$
 $= 45 m^2$
a : Benar
b : Salah

Figure 5. Subject S2's Answer to Question Number 1

Based on S2 Subject's answer to question number 1 related to level 3 numeracy literacy, namely application. Students can answer the third indicator of numeracy literacy skills, namely carrying out procedures well even if the answer is incomplete and being able to apply the right strategy in solving problems. From the answers of subject S2, it is known that students found the area of the garden that would be used for the pool, namely: $60 m^2 \times \frac{1}{6} = \frac{60 \times 1}{6} = \frac{60}{6} = 10 m^2$. This answer is correct, but the student did not write down what information was found in the question. Next, students find the area of the garden that will be planted with grass and other plants, namely: $60 m^2 \times \frac{3}{4} = \frac{60 \times 3}{4} = \frac{180}{4} = 45 m^2$. This answer is correct, but the student did not write down what information was found in the question. Overall, students have not been able to carry out the procedures for completing answers correctly and completely. However, the strategy (calculation process) that subject S2 used in the process of completing the answer was correct, but the answer was incomplete. Subject S2 also could not conclude the answer correctly, namely finding the area of the garden that would be covered with coral stones.

Meanwhile, level 4 numeracy literacy skills (reasoning) for students with moderate initial mathematics abilities can be seen in Figure 6 below.:

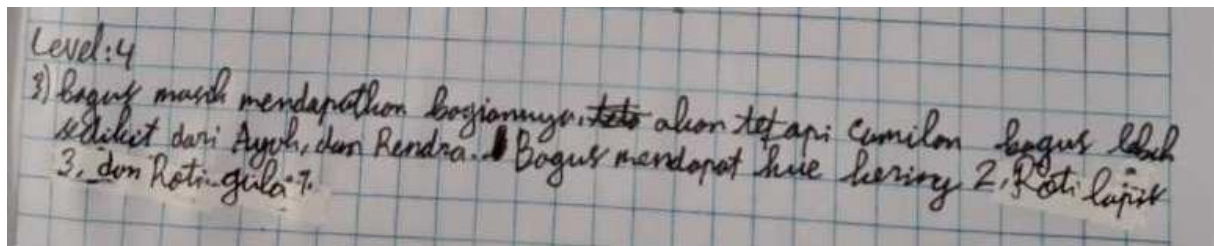


Figure 6. S2 Subject's Answer to Question Number 2

Based on Figure 6 above, it can be seen that Subject S2 was able to provide conclusions regarding what was asked in the question. Even though the answer given is still wrong, the reasoning process is visible here, although it is still categorized as poor reasoning. Subject S2 concluded: Bagus still gets his portion, but Bagus snacks less than Dad and Rendra. Bagus got 2 pastries, 3 sandwiches, and 1 sugar bun. The S2 Subject answer was still wrong for the students with the pastries and sugar buns that Bagus got, while for the sandwiches the students got Bagus was correct, namely 3 sandwiches. However, here Subject S2 does not make the process of completing the answer, from which the conclusion is generated. Thus, it can be concluded that the S2 subject has not mastered the numeracy literacy skills of the S2 subject at level 4 (reasoning).

Description of the Numeracy Literacy Ability of S3 Subject with Low Ability

The S3 subject was asked to answer two questions in question number 1 (level 3) and question number 2 (level 4). The following is an example of an answer from a doctoral student who has low initial mathematics abilities to question number 1 as follows:

Figure 7. S3 Subject's Answer to Question Number 1

Based on Subject S3's answer to question number 1 related to level 3 numeracy literacy, namely application. Students can answer the third indicator of numeracy literacy skills, namely carrying out procedures well even if the answer is incomplete and being able to apply the right strategy in solving problems. From the answers of subject S3 it is known that students found the area of the garden that would be used for the pool, namely: $60 \text{ m}^2 \times \frac{1}{6} = \frac{60 \times 1}{6} = \frac{60}{6} = 10 \text{ m}^2$. This answer is correct, but the student did not write down what information was found in the question. Next, students find the area of the garden that will be planted with grass and other plants, namely: $60 \text{ m}^2 \times \frac{3}{4} = \frac{60 \times 3}{4} = \frac{180}{4} = 45 \text{ m}^2$. This answer is correct, but the

student did not write down what information was found in the question. Then, the next step is for students to add up the area of the garden where the pond is planted and the area of the garden that will be planted with grass and other plants, namely: $10 m^2 + 45 m^2 = 55 m^2$. However, the students did not answer until the question was finished, namely how much area of the garden would be covered with coral stones. Overall, students have not been able to carry out the procedures for completing answers correctly and completely. However, the strategy (calculation process) that subject S3 used in the process of completing the answer was correct, but the answer was incomplete. Subject S3 also could not conclude the answer correctly.

Meanwhile, level 4 numeracy literacy skills (reasoning) in students with low initial mathematics abilities can be seen in Figure 6 below.:

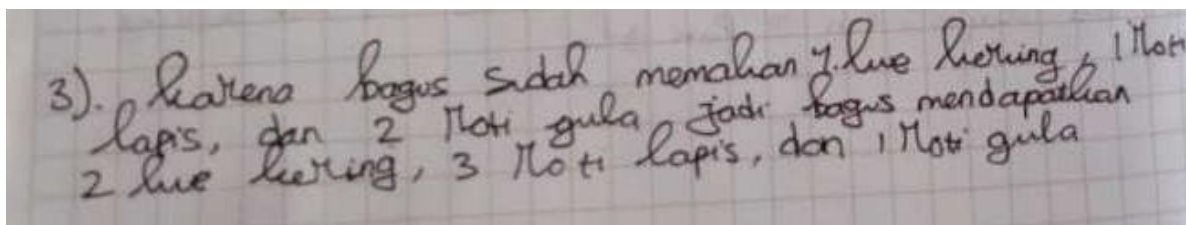


Figure 8. The answer of S3 Subject on Question Number 2

Based on Figure 6 above, it can be seen that Subject S3 was able to provide conclusions regarding what was asked in the question. Even though the answer given is still wrong, the reasoning process is visible here, although it is still categorized as poor reasoning. Subject S3 concluded: because Bagus had eaten 4 pastries, 1 sandwich, and 2 sugar loaves, so Bagus got 2 pastries, 3 sandwiches, and 1 sugar loaf. It can be seen that Subject S3 has been able to write what information is known in the questions correctly, but the students have not been able to answer the questions correctly. The answers for Subject S3 were still wrong for the students' pastries and sugar bread that Bagus got, while for the sandwiches that Bagus got for the students, they were correct, namely 3 sandwiches. However, here Subject S3 does not make the process of completing the answer, from which the conclusion is generated. Thus, it can be concluded that the S3 subjects have not mastered the numeracy literacy skills of the S3 subjects at level 4 (reasoning).

Discussion

Based on the research results presented above, several things will be discussed which are the focus of the research, including:

Students' numeracy literacy skills at level 3 (application) for high-ability students are very good. Students can carry out procedures correctly and apply appropriate strategies in solving problems. Even though there are still a few errors in the solution process, the answers given are correct. Meanwhile, for students with medium abilities, level 3 numeracy literacy skills (reasoning) are still not good. Overall, students with moderate abilities have not been able to carry out the procedures for completing answers correctly and completely. However, the strategy (calculation process) that students use in the process of completing the answer is correct, but the answer is incomplete. Furthermore, for low ability students, level 3 numeracy literacy skills (reasoning) are also still not good. Overall, students have not been able to carry out the procedures for completing answers correctly and completely. However, the strategy

(calculation process) that students use in the process of completing the answer is correct, but the answer is incomplete. Students also cannot conclude the answer correctly.

Meanwhile, students' numeracy literacy skills at level 4 (reasoning) for high-ability students are very good. Overall, students with high abilities have been able to master level 4 numeracy literacy skills, although there are still some mistakes made in the process of completing answers. Students can present solutions effectively in real-world and complex situations, display different representations, and relate them to real-world problems. From the process of completing these answers, students can reason well. Meanwhile, students with medium abilities have not yet mastered the numeracy literacy skills of students at level 4 (reasoning). This is caused by students with moderate abilities not making the process of completing the answer, from which the conclusion is generated. Furthermore, students with low abilities also cannot master the numeracy literacy skills of students at level 4 (reasoning). This is caused by students with moderate abilities not making the process of completing the answer, from which the conclusion is generated.

Based on the results of interviews conducted by researchers with fifth-grade students and mathematics teachers at SDN 106831 Bakaran Batu, Deli Serdang Regency, North Sumatra Province, it was concluded that: the failure to fulfill several indicators of middle-level literacy abilities (level 3 and level 4), was caused by student errors, including: (1) not writing down the information that is known and asked for in the question; (2) errors in the process of solving the question such as miscalculations; and (3) not writing down the conclusion of the answer. Furthermore, based on the results of interviews with 3 research subjects, namely: the student with high-level abilities (S1), the student with medium-level abilities (S2), and the student with low-level abilities (S3), several things were obtained which were the factors causing students not to be able to answer medium level numeracy literacy questions is because students are not yet familiar with story questions related to everyday life. This is in line with the results of research conducted by (Putri et al., 2021), if students are familiar with story problems related to everyday life, then these students will be able to improve their numeracy literacy skills.

Conclusion

In general, high-ability students' numeracy literacy skills can master level 3 (application) and level 4 (reasoning) very well. Meanwhile, the numeracy literacy skills of students with medium and low abilities in understanding level 3 (application) and level 4 (reasoning) questions are still not good. There were several students' mistakes in working on the questions, including 1) students did not write down the information found in the questions, 2) errors in the process of solving the questions, and 3) did not write down the answer conclusions. The reason why students are unable to answer medium-level numeracy literacy questions is that students are not yet familiar with story questions related to everyday life. Students are not yet able to properly understand the relationship between concepts and concepts represented in contextual problems.

Future research is expected to be able to analyze students' numeracy literacy skills at a high level (level 5 and level 6). Thus, it can be seen how much students' abilities are in answering high-level numeracy literacy questions, and immediately determine the factors causing students' difficulties in answering these questions. Apart from that, solutions can also

be found to overcome students' difficulties in mastering high-level numeracy literacy skills. To overcome students' difficulties in answering level 3 and level 4 numeracy questions, teachers should familiarize students by providing example questions and practice questions related to intermediate-level literacy questions in each mathematics material taught.

Declarations

- Author Contribution : SM: Resources, Data Curation, Writing - Review & Editing, Funding acquisition
DA: Supervision, Validation
ID: Supervision, Validation
SS: Supervision, Conceptualization
- Conflict of Interest : The authors declare no conflict of interest.

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