Analysis of Students' Mathematical Reasoning Ability in Learning Realistic Mathematics Education in Terms of Self-regulation of Quadrilateral Material

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ABSTRACT

This study aims to describe the reasoning of class VII students on quadrilateral material using the RME approach in terms of self-regulation. This study uses descriptive qualitative method. There were 6 respondents who were used as subjects in the study. In the research conducted, triangulation (questionnaires, tests, and interviews) was used as a data collection technique. The results of the study show that (1) Students with a high level of self-regulation have high mathematical reasoning, namely students are able to achieve all indicators of mathematical reasoning (2) Students with moderate levels of self-regulation have moderate mathematical reasoning, that is, not all students can fulfill all indicators. For the second question, students can only fulfill the ability to make conjectures (3) Students with a low level of self-regulation have low mathematical reasoning, that is students can only fulfill a number of indicators, on of which only fulfills the indicator for making conjectures for the second problem. For students who have moderate and low mathematical reasoning to further improve their understanding of the material and questions. This can be done by getting used to relating problems to everyday life.

Keywords: Reasoning; RME; self-regulation

ABSTRAK


Kata Kunci: Penalaran; RME; Self-regulation

INTRODUCTION

One of the subjects that are considered important for everyday life and the future is mathematics. Based on the opinion of Safitri (2018) mathematics is used as a subject that plays an important role in the development of science. The same thing was also expressed by Zaini et al (2014) that in helping to improve students abilities, in a mathematics education is a lesson that has an important role. Through studying mathematics, one can develop critical thinking, logical, systematic, reasoning, and creative and effective collaboration. Therefore, students must master mathematical knowledge as early as possible and must be able to develop students potential through learning mathematics so that they can understand properly and correctly.

As stated by the Minister of Education and Culture Number 58 of 2014, the purpose of learning mathematics is so that students have the ability to reason, manipulate mathematics in simplification and analysis of existing components to solve problems. Students low reasoning abilities affect Indonesia's ranking or placement in the Trends International Mathematics and Science Study (TIMSS) and the Program for International Student Assessment (PISA). In the 2011 TIMSS survey, Indonesia was ranked 38th out of 42 countries. Indonesia ranks 73rd out of 79 countries in the 2018 PISA (OECD, 2018). Based on what was disclosed by Widyaningsih et al (2021) the achievement of scores that are classified as still below is because Indonesian students are still unfamiliar with working on TIMSS and PISA questions which in general are able to measure reasoning abilities and argue in a mathematical calculation. Based on the opinion of Shonia et al (2021), One way to improve the quality of education in Indonesia is to have the ability to think the good one. According to Shadiq (2004) stated that "Mathematics learning and mathematical reasoning are two things that are integrated. Mathematical material is understood through logical thinking, and thinking is trained through learning mathematics.

In addition to reasoning abilities which are the foundation for constructing mathematical knowledge, there is also the most important factor of individual circumstances that can influence learning, namely self-regulation. Fadilah et al (2021) revealed that self-regulation is an activity, a
constructive process for students in ensuring their learning goals. Students also try to monitor, regulate, control their cognition, motivation and behavior. Thus, through self-regulation students can combine academic learning and self-control. With this students are motivated to achieve learning objectives more effectively. Because students do not feel pressured by the learning given by the teacher, but students feel the freedom to study independently. Characteristics of self-regulation including describing students high self-personality and involving students self-metacognitive processes to consciously develop, apply, and carefully evaluate their own learning and self. Habituation of cumulative learning activities fosters a willingness or desire to learn in these subjects, which then forms a strong, persistent, responsible and accomplished person (Hendriana et al., 2018).

In fact, student achievement is still relatively low. According to students, learning mathematics is the most difficult thing. Because mathematics is taught by learning methods or approaches that are less attractive and difficult for students to understand. According to Budianto (2018), mathematics is the most frightening, most difficult and abstract lesson for students. The material taught tends to be more on memorization. The teacher only acts as a transferor of knowledge while students are passive recipients. This is what causes learning mathematics to look boring and less attractive to students. The low achievement of students mathematics learning outcomes is not only due to the difficult content of the material, but one of the main causes is the learning process which is less interesting and less understandable by students. In today's era, teachers must be able to introduce effective learning methods or approaches so that students can easily accept the material presented.

Ability can be classified as high if students are able to understand their own situation, namely by self-regulation. In order to improve reasoning abilities, there are innovations that can improve students mathematical reasoning. One of them with the application of learning realistic mathematics education (RME). This approach focuses on learning mathematics that is focused on everyday life or contextual that teaches students in real terms. So that the teacher gives flexibility to students to develop their own understanding in accordance with the experience gained. RME in Indonesia is called Indonesian realistic mathematics education. Basically the principle of this RME approach, mathematics material is delivered through contextual topics. To help students understand abstract mathematical material more easily. Once students are able to understand mathematics, it will be easy to improve students mathematical reasoning.
Afsari et al (2021) argues that a learning using the RME approach is one of the answers to carry out an active and effective teaching and learning process, especially learning mathematics. The RME approach provides more realistic explanations so that students more easily accept what is taught by the teacher. One lesson that gives students imaginable situations is the use of a realistic mathematics education approach. Based on the opinion of Kusmaryono & Maharani (2021), realistic problems do not always originate from problems that exist in the real world and in students daily lives, but realistic problems are if a problem is real (real) or imaginable (imaginable) in the minds of students. Based on the results of initial observations obtained from interviews with mathematics teachers, learning that is linked to the surrounding conditions will be much better, because students can more easily imagine the problems they are given.

Based on the statement in above, researchers are interested in analyzing mathematical reasoning in RME learning in terms of self-regulation in quadrilateral material. The problem formulation of this research is how is the mathematical reasoning ability of class VII students at SMP N 1 Menden on quadrilateral material using the RME approach in terms of self-regulation? The purpose of this study was to describe the mathematical reasoning abilities of class VII students on quadrilateral material using the RME approach in terms of self-regulation.

METHOD

This study uses a descriptive qualitative method. Sanjaya (2006) argues that qualitative research is research that uses data sources from real life and researchers as the main tool, and drawing conclusions is an agreement between researchers and respondents. Description itself is a research method whose goal is to describe a symptom, event, or situation that is the subject of in-depth research.

Research location was carried out at Menden 1 Public Middle School, Blora Regency and was carried out in February 2023. In the research conducted, triangulation (questionnaires, tests and interviews) was used as a data collection technique. The data collection stages in this research include (1) Providing learning material about squares and rectangles by applying the RME approach. (2) Providing learning material on rhombuses and trapezoids using the RME approach. (3) Give reasoning ability test questions to students. (4) Give a self-regulation questionnaire to the research class. (5) Conduct interviews with students who have been selected according to the desired criteria. (6) Conduct interviews with teachers. In this research, the
questionnaire functions to collect data related to the level of self-regulation. The self-regulation questionnaire uses indicators developed by Hendriana et al (2018) which are listed in table 1 below.

<table>
<thead>
<tr>
<th>No</th>
<th>Indikator Self-Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inisiatif belajar dengan atau tanpa bantuan orang lain</td>
</tr>
<tr>
<td>2</td>
<td>Menelaah kebutuhan belajar sendiri</td>
</tr>
<tr>
<td>3</td>
<td>Merumuskan atau memilih tujuan pembelajaran</td>
</tr>
<tr>
<td>4</td>
<td>Memilih dan memakai sumber</td>
</tr>
<tr>
<td>5</td>
<td>Pilih strategi pembelajaran dan evaluasi hasil pembelajaran mereka sendiri</td>
</tr>
<tr>
<td>6</td>
<td>Berkolaborasi dengan orang lain</td>
</tr>
<tr>
<td>7</td>
<td>Membangun makna</td>
</tr>
<tr>
<td>8</td>
<td>Kontrol diri</td>
</tr>
</tbody>
</table>

(Hendriana et al., 2018)

The self-regulation questionnaire criteria used in this study are listed in table 2 in below:

<table>
<thead>
<tr>
<th>intervals</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>73 ≤ JS ≤ 100</td>
<td>Tall</td>
</tr>
<tr>
<td>47 ≤ JS &lt; 73</td>
<td>Currently</td>
</tr>
<tr>
<td>0 ≤ JS &lt; 47</td>
<td>Low</td>
</tr>
</tbody>
</table>

(Arikunto, 2018)

Information:

JS = Number of questionnaire scores obtained by students

Self-regulation questionnaire instrument consists of 20 statements according to indicators, each of which contains 10 statements, both positive and negative. Furthermore, data collection was obtained through tests. Researchers use tests to collect data related to students mathematical reasoning. The test instrument consists of 2 questions. This study used an objective test in the form of a description of the quadrilateral material. This test instrument uses indicators reasoning conveyed by (Siregar, 2018). Where the indicators are in accordance with table 3 below:
The categories used to measure mathematical reasoning are based on table 4 below:

<table>
<thead>
<tr>
<th>Kategori kemampuan penalaran matematis</th>
<th>Pencapaian Kemampuan Penalaran Matematis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tinggi</td>
<td>&gt; 70%</td>
</tr>
<tr>
<td>Sedang</td>
<td>55% ≥ 70%</td>
</tr>
<tr>
<td>Rendah</td>
<td>≤ 55%</td>
</tr>
</tbody>
</table>

(Maya, 2011)

Furthermore, data collection was obtained through interviews. Interviews are used to describe the reasons for the answers to the questions given. The researcher determines the subject to be interviewed by looking at the results of the *self-regulation questionnaire*. Based on the results of the questionnaire, it was classified into three levels, namely high, medium and low. Each level is chosen 2 people randomly.

RESULTS AND DISCUSSION

From the results of the *self-regulation questionnaire*, it was divided into three levels, namely high, medium, and low, measured by a *Likert scale* then selected 6 respondents who meet the research subject. The research subjects included 2 students in each level. Questionnaire grouping according to table 5 below.

<table>
<thead>
<tr>
<th>No</th>
<th>Student Code</th>
<th>Amount</th>
<th><em>Self-regulation</em> category</th>
<th>Subject Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>IS 24</td>
<td>74</td>
<td>Tall</td>
<td>S01</td>
</tr>
<tr>
<td>2.</td>
<td>IS 22</td>
<td>79</td>
<td>Tall</td>
<td>S02</td>
</tr>
<tr>
<td>3.</td>
<td>IS 30</td>
<td>72</td>
<td>Currently</td>
<td>S03</td>
</tr>
<tr>
<td>4.</td>
<td>IS 31</td>
<td>65</td>
<td>Currently</td>
<td>S04</td>
</tr>
<tr>
<td>5.</td>
<td>IS 02</td>
<td>46</td>
<td>Low</td>
<td>S05</td>
</tr>
<tr>
<td>6.</td>
<td>IS 03</td>
<td>42</td>
<td>Low</td>
<td>S06</td>
</tr>
</tbody>
</table>
Data on students scores on the mathematical reasoning test were used as a reference to obtain information related to the reasoning of the 6 pre-selected respondents. The test results are divided into three levels, namely low, medium and high. This categorization serves to find out how the level of mathematical reasoning is if the level of self-regulation is high, medium or low. So that at the end of the discussion it was concluded that students who have a high level of self-regulation have high, medium or low levels of mathematical reasoning as well as medium and low levels of self-regulation. The mathematical reasoning possessed by class VII D varies greatly, it is obtained that the reasoning ability has a high level of 53.125%, a moderate level of reasoning ability of 18.75% and a low level of reasoning ability of 28.125%. Of the 6 respondents can be seen the reasoning ability they have. In table 6 below is a list of students according to their level who are used as research subjects.

Table 6 Grouping Results of Test Values

<table>
<thead>
<tr>
<th>No</th>
<th>Student Code</th>
<th>Mark</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>IS 24</td>
<td>91.67</td>
<td>Tall</td>
</tr>
<tr>
<td>2.</td>
<td>IS 22</td>
<td>85.42</td>
<td>Tall</td>
</tr>
<tr>
<td>3.</td>
<td>IS 30</td>
<td>64.58</td>
<td>Currently</td>
</tr>
<tr>
<td>4.</td>
<td>IS 31</td>
<td>56.25</td>
<td>Currently</td>
</tr>
<tr>
<td>5.</td>
<td>IS 02</td>
<td>50.00</td>
<td>Low</td>
</tr>
<tr>
<td>6.</td>
<td>IS 03</td>
<td>47.92</td>
<td>Low</td>
</tr>
</tbody>
</table>

To measure the level of mathematical reasoning, the test questions given by students are:

1. Pak Kholiq sedang mengganti salah satu susu bagian genteng di atap rumahnya. Atapnya berbentuk trapesium, panjang atap 4 m dan 10 m serta tinggi 4 m. 20 buah genteng dibutuhkan untuk setiap $m^2$ atap. Berapa banyak genteng yang dibutuhkan untuk mengganti satu sisi bagian genteng tersebut? Jelaskan alasanmu.

2. Ferda memiliki ruang tamu dan ingin mempercantik ruangan tersebut dengan memasang wallpaper pada dindingnya. Dinding ruangan yang akan dipasangi wallpaper memiliki bentuk sepasang persegi panjang dengan panjang 6 m dan tinggi 3 m dan sepasang persegi dengan sisi 3 m. Jika toko tersebut menawarkan dua
pilihan wallpaper yang berbeda yaitu tipe A dengan lebar 40 cm seharga Rp 35.000/m dan tipe B dengan lebar 60 cm seharga Rp 50.000/m. Wallpaper jenis manakah yang harus dibeli sehingga biaya pembelian minimal.

**Research subjects at a high level of self-regulation**

![Figure 1](image.png)

*Figure 1 Answer number 1 with high category*

Based on the results of research on subjects with a high level of *self-regulation* towards the results of the answers in Figure 1 based on indicators of mathematical reasoning, it has been obtained that students who belong to a high level of *self-regulation* have high mathematical reasoning. The overall score for question number 1 is 21. At the stage of making assumptions, students are able to provide complete and correct answers so that they get a score of 4. At the stage of doing mathematical manipulation, the answers written by students are slightly lacking so they get a score of 3. At the stage of giving evidence and reasons for the problem, the answers given by the students are complete and correct so that they get a score of 4. At the conclusion stage, students can provide complete and correct answers so that they get a score of 4. At the stage of re-examining the results of the completion, the answers students gave on the answer sheet still had a few deficiencies so they got a score of 3. In the last stage, namely finding
patterns to make generalizations, the answers given by students are slightly lacking so that they get a score of 3. For the second question, students give answers as follows.

**Figure 2 Answers to question number 2 with high category**

Furthermore, the overall score for question number 2 is 23. In the guessing stage, students can present complete and correct answers, so that they get a score of 4. At the stage of doing mathematical manipulation, the answers given by the students were quite complete and correct so that a score of 4 was obtained. At the stage of giving reasons and evidence to solve the problem, the answers given by students are slightly lacking so that they get a score of 3. At the stage of drawing conclusions from a statement, students are able to answer completely and correctly so that they get a score of 4. At the stage of reviewing answers, students are able to provide complete and clear answers so as to get a score of 4. The last stage is finding patterns to make generalizations, students are able to complete the questions with complete and correct answers so that they get a score of 4. So, the total score obtained for both questions is 44. The calculation method for getting the percentage of the value obtained is the score obtained by students divided by the maximum score and then multiplied by 100%, the percentage of student scores is 92%. After the researcher analyzed the answers to questions number 1 and 2, and based on the criteria of the mathematical reasoning category used by the researcher, the percentage of 92% belonged
to the high category so that subject S01 was categorized into a high level of mathematical reasoning.

Research by Risqia et al (2022) states that self-regulated learning is related to students mathematical reasoning. This shows that the better the students self-regulated learning, the better their mathematical reasoning will be. This is reinforced by Purwaningtyas (2019) and Najilah (2022) that students with a high level of self-regulation have high mathematical reasoning, these students are able to fulfill the ability to make assumptions, manipulate mathematics and the ability to provide reasons and evidence related to the correctness of solutions, can provide steps completion steps and provide a conclusion correctly and re-evaluate the validity of an argument.

In this study, students with high self-regulation is able to fulfill six indicators of mathematical reasoning, while for the second question it is able to fulfill 5 of the 6 indicators of mathematical reasoning. Based on the previous explanation, it was found that students had not been able to fulfill the ability to make conjectures. Hidayat & Aripin (2019) revealed that students who have good mathematical reasoning can find more facts and solve these problems with various solutions. Therefore, mathematical reasoning is the most important part that must be mastered by students.

**Research subjects at moderate self-regulation level**

![Figure 3 Answers to question number 1 with the medium category](image)

Based on the results of research with a moderate level of self-regulation towards completion based on indicators of mathematical reasoning, students belonging to the moderate
level of *self-regulation* have moderate mathematical reasoning. The overall score for question number 1 is 23. At the stage of submitting an allegation, the solution provided is quite complete and correct so that it gets a score of 4. At stage by manipulating mathematics, the answers given by students are slightly lacking so that they get a score of 3. At the stage of providing evidence and reasons for completion, the answers given by students were able to obtain a score of 4 because the completion was quite complete and correct. The stage of drawing conclusions from existing problems, students provide answers completely and correctly so as to achieve a score of 4. Furthermore, at the stage of checking the validity of the answers given, students were able to get a score of 4 because the answers were quite complete. The last stage is to find patterns of mathematical symptoms to make general conclusions, students are able to provide complete and correct answers so as to get a score of 4. The following students give answers to the second question.

![Figure 4Answers to question number 2 in the medium category](image)

Furthermore, the overall score for question number 2 is 8. At the stage of making assumptions, students are able to provide complete and correct answers so as to get a score of 4. At the stage of manipulating mathematics, students get a score of 2 because some of the answers given are correct with one or more errors. At the stage of providing evidence and reasons for completion, students were only able to get a score of 1 because the answers given by students were incomplete but there were a few correct answers. At the stage of drawing conclusions from the answers given, students get a score of 1 because the answers are incomplete but there are a few correct answers. At the stage of reviewing the validity of an argument, students do not give any answers so they get a score of 0. The last stage is finding patterns from completion to make generalizations, students do not give any answers so the score obtained is 0. So, the total score
obtained for both questions is 31. The method of calculation to get the percentage of the value obtained is the score obtained by the students divided by the maximum score then multiplied by 100%, the percentage of student scores is 65%. After analyzing questions 1 and 2, and based on the criteria of the mathematical reasoning category used by the researcher, the percentage of 65% is in the medium category so that the conclusion is that subject S03 has mathematical reasoning in the medium category.

Previous research revealed by Najilah (2022) that students who have moderate levels of self-regulation have moderate mathematical reasoning, with these students being able to fulfill the ability to make assumptions and the ability to provide reasons and evidence related to the answers given. In this research, for question number 1 students belonging to the moderate level of self-regulation were able to fulfill all existing indicators, while for question number 2 subjects S03 and S04 only fulfilled 1 indicator out of 6 indicators of mathematical reasoning. The indicators that can be fulfilled are making assumptions. This is in accordance with the research of Suprihatin et al (2018) where he revealed that one of the indicators that cannot be fulfilled at the moderate level of mathematical reasoning is mathematical manipulation. These indicators cannot be met by students for not understanding the problem. Based on the results of the interviews, this was also confirmed by the students, students could not fulfill the indicators because students did not understand the questions so students could not answer them correctly. Mathematical reasoning at a moderate level cannot reach indicators of drawing conclusions from the answers given, this is reinforced by Indriani et al (2018) who reveal that students with moderate mathematical reasoning on flat shape material are already able to understand concepts and are able to provide steps for solving them, but students are not able to conclude from the answers given.

**Research subjects at a low level of self-regulation**

*Figure 5 Answers to question number 1 with low category*
Based on the results of research on subjects with a low level of self-regulation towards the results of answers based on indicators of mathematical reasoning, students who belong to a low level of self-regulation have low mathematical reasoning. The overall score for question number 1 is 13. At the guessing stage, students give incomplete answers but there are a few correct answers so that they get a score of 1. At the stage of mathematical manipulation, students give partially correct answers and one or more errors so as to get a score of 2. At the stage of giving reasons and evidence for completion, students get a score of 2 because they are only able to present some correct answers but there are still a few errors. At the stage of concluding answers, students give some correct answers but there are still a few wrong answers so they get a score of 2. At the stage of reviewing the answers given, students were only able to get a score of 3 because they gave answers with few errors. The last stage is finding patterns to make general conclusions, students give answers but there are still a few mistakes so they get a score of 3. The following is the result of student completion of the second problem.

![Figure 6 Answers to question number 2 with low category](image)

Furthermore, the overall score for question number 2 is 11. At the stage of making assumptions, students were able to get a score of 4 because the student's answers on this indicator were quite complete and correct. At the mathematical manipulation stage, students give incomplete answers but at least there are several correct answers so they get a score of 1. At the stage of compiling evidence and giving reasons for the problem, students can only get a score of 1 because the answers are incomplete but there are few correct answers. At the stage of concluding answers, students are unable to provide complete answers but at least there are a few correct answers so that they get a score of 1. At the stage of re-examining their answers, students are able to present some correct answers with a few wrong answers so that they get a score of 2. The last stage is finding patterns to make generalizations, students get a score of 2 because some of the answers are correct with few errors. So, the score obtained for both questions is 24. The method of calculation to get the percentage of the value obtained is the score obtained by the
students divided by the maximum score then multiplied by 100%, the percentage of student scores is 50%. It can be concluded that after analyzing questions 1 and 2, and based on the criteria of the mathematical reasoning category, the percentage of 50% belongs to the low category so that subject S05 has mathematical reasoning in the low category.

Previous research revealed by Najilah (2022) that students with low self-regulation have low mathematical reasoning, where these students are only able to conclude from the answers given. In this research, students belonging to the low level of self-regulation for subject S05 on the first question can not achieving indicators of making assumptions and indicators of compiling evidence and giving reasons related to problems, while for subject S06 it cannot reaching indicators draw conclusions from the answers given and indicators find patterns to make generalizations. Meanwhile for the second question, subject S05 could not achieve all the indicators because the students did not understand the problems so that students do not give any answers. And for S06 it only fulfills one of the six indicators of mathematical reasoning, namely indicators that can be fulfilled only on indicators of making assumptions. According to the results of the interviews, this happened because student understanding still lack of questions so they can not be solved correctly. This is in accordance with the research of Sulistiawati et al (2019) and Oktaviana & Aini (2021), students who belong to low mathematical reasoning are only able to do the initial steps without being able to proceed to determine conclusions because students do not understand the reasoning ability test questions and do not carry out examinations. back to the answer so that students cannot draw conclusions at the end of the answer.

To improve students reasoning, an initial step is needed, namely one possibility is to change the learning approach. To increase students understanding, researchers used an effective learning approach, namely the RME approach. If students understanding is good then this will improve students mathematical reasoning. Because this research class was the first time they were exposed to the RME approach, students were not yet able to adapt well. As a result, some students were unable to answer the questions. In the learning process (mathematics) according to Nizaruddin & Kusmaryono (2023), independent learning and self-regulation interact flexibly to improve students critical thinking abilities. The implication is that critical thinking skills increase when students learn independently and have good self-regulation, thereby triggering curiosity and learning challenges. If students already have curiosity and a challenge to learn then this will help train students reasoning skills. Self-regulation is the most important factor within students that
can influence student learning besides mathematical reasoning. Self-regulation can improve students mathematical reasoning because by understanding oneself about what needs to be improved, this will help improve student learning outcomes. Self-regulation has a significant effect on mathematical reasoning, this is based on opinion (Rizqia et al., 2022). In Wanti et al (2017) research, if a students self-regulation is negative or poor then it will affect the students mathematical reasoning ability, conversely if self-regulation is positive then the students reasoning ability will increase or the results will be good.

CONCLUSION
From the results and discussion above, it can be concluded that mathematical reasoning in terms of self-regulation with the RME approach includes the following: (a) Students who have a high level of self-regulation, have high mathematical reasoning, namely subject S01 is able to fulfill the ability to make conjectures, manipulate mathematics, be able to provide evidence and reasons for the solution given, be able to conclude answers, be able to re-examine answers and be able to find pattern for making general conclusions. Meanwhile, subject S02 was unable to make assumptions about the problem. (b) Students with a moderate level of self-regulation have moderate mathematical reasoning, that is, for question number 2, subject S03 and S04 are only able to fulfill the ability to make conjectures. (c) Students with a low level of self-regulation have low mathematical reasoning, namely for the first question subject S05 cannot reach the ability to make assumptions and provide solutions or evidence for the problems in the problem. Whereas subject S06 cannot fulfill the ability to conclude answers and the ability to determine patterns to make general conclusions. For the second question, subject S05 could not achieve all the indicators of mathematical reasoning. And for S06 it only fulfills the ability to make assumptions.

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