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# THE EFFECT OF CONFIDENCE LEVEL ON PROBLEM-SOLVING ABILITY ON THE TOPIC OF COMPARATIVE TRIGONOMETRY: A STUDY ON HIGH SCHOOL STUDENTS

**Destri Handayani[1], Kusnandi[2,]**
[1]School of Mathematics Education Postgraduate Program, Indonesia University of Education, Indonesia
[2] Faculty of Education and Natural Sciences, Department of Mathematics Education, Indonesia University of Education, Indonesia
Email: d.handayani31295@gmail.com, kusnandi@upi.edu

## ABSTRACT

*This research addresses the challenges students face in understanding the concept of trigonometric comparison. This problem is often considered as one of the weak areas in mathematics learning. The purpose of this research is to identify the influence of students' confidence level can affect problem solving ability related to trigonometry material for a research study on high school students. The research used descriptive qualitative method through in-depth interviews to analyze the exam results with the students who became the research subjects and observed the students as they solved trigonometry problems. This study concluded that: 1) students who have high self-confidence can fulfill the criteria according to the indicators of problem solving ability according to Polya's indicators, namely being able to understand the problem, being able to make a plan, completing the plan and being able to look at the answer again. 2) students who have moderate self-confidence can meet the criteria according to Polya's problem solving ability indicators, namely being able to understand the problem, can make a plan, complete the plan, but have not been able to see all the answers, and 3) students who have low self-confidence have difficulty understanding, unable to plan, and complete the solution plan and cannot see all the answers.*

**KEYWORDS** *Problem Solving, Self-Confidence, Trigonometric Comparison*



## INTRODUCTION

Mathematics is one of the important subjects in the education curriculum in Indonesia. It is stated in the Law of the Republic of Indonesia Number 20 of 2003 article 35 paragraph 2 concerning the national education system that mathematics is one of the components in the education curriculum that supports the development of cognitive and problem-solving skills for students. Mathematics is a subject with

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abstract characteristics. Topics studied in mathematics include algebra, calculus, logic, geometry, trigonometry and others. One of the topics in mathematics that often gets attention is trigonometry.

Trigonometry itself, is a very important science in developing logical thinking and problem solving skills. One of the materials that are part of trigonometry is comparison. Trigonometric comparison is a core component of advanced mathematics that can be applied in everyday life, for example it can be applied to navigation, mapping, architecture, astronomy, physiotherapy and technology. Trigonometric comparison is a fundamental topic that involves understanding the relationship between angles and sides in a triangle, as well as the application of various trigonometric formulas and concepts to solve problems. Students' ability to master this material not only affects their academic results but also affects their readiness for further mathematical studies, practical applications in various fields and changes students' mindset in preparing themselves to pursue education and careers in the future.

One of the mathematical abilities to support students in mastering comparative trigonometry material is to have proficient mathematical problem solving skills. Stanic and Kilpatrick (1993) illustrate the role of problem solving skills as a very broad topic. This means that problem solving is synonymous with solving problems, working on story problems, making patterns, interpreting images, developing geometric constructions, proving theorems, and so on. Meanwhile, according to Schoenfeld (1985) problem solving has generally been accepted as a means to advance thinking skills. Reitman defines the ability of problem solvers as people who understand and accept goals without direct means to achieve certain goals.

Problem solving is one of the main aspects of the mathematics curriculum that requires students to apply and integrate many mathematical concepts and skills and make decisions. Problem solving ability is very important for students at all levels of the formal education process from kindergarten to college school. With regard to the importance of problem solving skills, the *National Council of Teachers of Mathematics* (NCTM) states that there are several aspects included in mathematical thinking skills including understanding, mathematical problem solving, mathematical communication, mathematical reasoning and proof, mathematical connections and mathematical representation. Branca (2016) states that problem solving skills are very important for every student, because: a) problem solving is a general goal of teaching mathematics, b) problem solving which includes methods, procedures and strategies is a core and main process in the mathematics curriculum, and c) problem solving is a basic ability in learning mathematics.

Meanwhile, Pehkonen (2007) grouped the reasons why it is important to teach problem solving into four categories including: a) problem solving can develop cognitive skills, b) problem solving supports the development of creativity, c) problem solving is part of the mathematics application process, and d) problem solving can motivate students to learn mathematics. This is reinforced by the opinion of Ruseffendi (1991) that problem solving skills are very important in

mathematics, not only for those who in the future will explore or study mathematics, but also for those who will apply it in other fields of study and in everyday life.

But in practice, students have not mastered problem-solving skills, especially in trigonometric comparison material. Many students face difficulties in solving trigonometric problems, especially trigonometric problems in story form. Based on the results of preliminary observations made in mathematics subjects in class X SMA Negeri 2 Bandung in May 2024, it is known that many students have difficulty in trigonometry material. Students have difficulty when working on story form problems. Students experience confusion in using formulas, modeling and distinguishing angles of depression from angles of elevation. Through interviews with math teachers, information was obtained that students who managed to get daily test scores on trigonometric comparison material above 75 were less than 50%. According to the results of research conducted by Firzi and Nida (2017) students have difficulty using concepts, namely 80.95%, difficulty in understanding principles, namely 42.86% and difficulty solving problems in verbal form, namely 38.10%.

There are several factors that can affect students in mastering problem solving skills, especially in trigonometric comparison material. These factors are cognitive, motivational, and effective factors. One factor that is often overlooked but very important is student confidence. Hannula, Maijah & Pohkonen (2018) stated that if students have good self-confidence, then students can be successful in learning mathematics. Self-confidence is defined by TIMMS as having good mathematics, being able to learn math quickly and never give up, showing confidence in their mathematical abilities, and being able to think realistically. Thus, it can be concluded that self-confidence can support students' motivation and success in learning mathematics so that self-confidence is also an important thing for students to have in the process of learning mathematics. Students will tend to understand, find, and fight for the mathematical problems they face for the expected solution (Ramdan et al., 2018). Therefore, in this study, students' self-confidence is a novelty that will be studied.

Based on the background previously described, the purpose of this study is to determine the effect of self-confidence level on problem solving ability on the topic of trigonometric comparison of high school students. So the problem formulations in this study are: "How does the level of self-confidence affect problem solving ability on the topic of trigonometric comparison: a study of high school students?".

**Mathematical Problem Solving Ability**

According to Robert L Solso (2020) problem solving is a thought that is directed directly to determine a solution or solution to a specific problem. In a book entitled *How to Solve it,* Polya identifies the general steps that everyone must take in the process of solving mathematical problems including understanding the problem, developing a problem solving plan, implementing the plan, reviewing the answer (Viitala, 2018).

*"To Polya (James W. Wilson, Maria L. Fernandez and Nelda Hadaway, 1993), problem solving was a major theme of doing mathematics and "teaching students to think" was of primary importance. "How to think" is a theme that*

*underlies much of genuine inquiry and problem solving in mathematics. However, care must be taken so that efforts to teach students "how to think" in mathematics problem solving do not get transformed into teaching "what to think" or "what to do."*

Indicators of mathematical problem solving ability according to NCTM (2000) (Ulya, 2016) include: 1) build new mathematical knowledge through problem solving, 2) apply and adjust various appropriate strategies to solve problems, 3) solve problems that arise in mathematics and in other contexts, and 4) monitor and reflect on the process of solving mathematical problems.

According to In'am (in Astutiani, Isnarto and Hidayah, 2019: 298), each step in solving problems has different characteristics from one problem to another. According to In'am (in Astutiani, Isnarto and Hidayah, 2019: 298) the characteristics of mathematical problem solving ability are as follows: 1) the right strategy in solving problems; 2) have important knowledge of incorrect solutions; 3) have a level of skill in problem solving that can really affect accuracy; 4) problem solving is not based on memory owned; (5) each problem has a unique strategy; 6) various approaches must be learned and understood to produce appropriate and expected problem solving; 7) knowledge and skills in applying mathematical concepts and principles that have been learned really help to solve problems.

Based on its characteristics, problem solving has advantages. The advantages of problem solving are: 1) Educate students to think systematically, 2) Able to find various ways out of a difficulty faced, 3) Learn to analyze a problem from various aspects and 4) Educate students to believe in themselves. While the weaknesses of problem solving are: 1) Requires quite a lot of time, 2) if in the group the ability of the members is heterogeneous, then the clever students will dominate the discussion while the less clever students become passive as listeners only.

**Self-Confidence**

*Self-Confidence* comes from two words, namely self which means self and *confidence* which means trust, so it can be interpreted as self-c*onfidence*. *Self Confidence* is the attitude of individuals who feel they have confidence in their ability to develop positive values both for themselves and for others (Fasni, 2017). According to Lauster quoted by Sutisna (2016) states that self-confidence is an attitude or feeling of confidence in one's own abilities so that the person concerned feels less anxious about his actions, feels free with the things he likes, and there is a drive for achievement and is able to know his own weaknesses and strengths. According to Bandura, quoted by Rosyid (in Fasni, 2017: 19), self-confidence is a belief possessed by a person that he is able to behave as needed to obtain the expected results. *Self confidence* can also be interpreted as a combination or combination of *self esteem* and *self efficacy* where a person believes in his assessment of his own abilities and feels the appropriateness to succeed.

Wandari (2017: 14) says that there are several ways to increase *self confidence,* including according to the following indicators: 1) increase *self-esteem*, namely increasing self-acceptance, 2) maintain a good self-image, 4) always think positively, 5) mingle with people who have high optimism, 6) help others

wholeheartedly, 7) be happy, 8) behave according to the stereotypical behavior of confident people, 9) be able to play an active role and be enthusiastic.

## RESEARCH METHOD

This research is a descriptive qualitative research because it aims to find out clearly and in detail and in depth about the effect of self-confidence level on problem solving ability on the topic of trigonometric comparison of high school students. While the data analysis used in this study uses triangulation techniques. The triangulation technique according to Sugiyono (2020) can be interpreted, researchers use different techniques to get data obtained in a study but the source remains the same. The sample selection technique used in this study was purposive sampling. According to Sugiyono (2020) purposive sampling is a technique for determining participants with certain considerations. So that the participants in this study were 6 students from class X who were selected based on the level of problem solving ability with high, medium and low categories. Data collection techniques in this study through analysis of problem solving ability test results, interviews, observation and documentation.

## RESULT AND DISCUSSION

In this section, the research data obtained from the research subjects will be described and analyzed. The results of the analysis are used to explore the effect of self-confidence level on problem solving ability on the topic of trigonometric comparison with a case study of high school students which will be described based on the criteria of high, medium and low problem solving ability. The problem solving ability test questions consist of 4 description questions given to 6 students. The research subjects obtained from the results of data collection can be seen in table 1.

**Table 1 Research Subjects on the Problem Solving Ability Test**

| No. | Subject Code | Value |
|---|---|---|
| 1 | S-1 | 92 |
| 2 | S-2 | 100 |
| 3 | S-3 | 67 |
| 4 | S-4 | 67 |
| 5 | S-5 | 33 |
| 6 | S-6 | 75 |

From the data in the table above, the number of students who became research subjects was 6 students. Then the 6 students were grouped based on the criteria for high, medium and low problem solving skills. The categorization criteria are based on the average score ($\underline{X}$) and standard deviation (SB) in accordance with the opinion of Somakin (2010: 75). For the categorization can be seen in table 2.

**Table 2 Category Criteria for Problem Solving Ability**

| Category | Value Range |
|---|---|
| High | $x \geq \underline{X} + SB$ |
| Medium | $\underline{X} - SB < x < \underline{X} + SB$ |
| Low | $x \geq \underline{X} - SB$ |

The results of the calculation of concept understanding ability categorization criteria based on the high, medium and low problem solving ability categories can be seen in table 3.

**Table 3. Criteria for Categorizing Problem Solving Ability**

| Category | Low Value |
|---|---|
| High | $x \geq 95{,}8$ |
| Medium | $48{,}8 < x < 95{,}8$ |
| Low | $x \leq 48{,}8$ |

Based on the results of the categorization of problem solving comprehension ability, it is obtained that the high category is students who score more than or equal to 95.8, the medium category is students who score between 48.8 to 95.8 while the low ability criteria are students who score less than or equal to 48.8. After determining the criteria for categorizing the ability to understand concepts based on three categories, namely high, medium and low categories, the percentage of correct answers to each item can be calculated. The percentage of students' correct answers on the test results of students' mathematical concept understanding ability based on categorization criteria can be seen in table 4.

**Table 4. Mathematical Problem Solving Ability Test Result Data**

| Category | Subject |
|---|---|
| High | S-2 |
| Medium | S-1 |
| | S-3 |
| | S-4 |
| | S-6 |
| Low | S-5 |

Based on the table above, students with the code S-2 were selected to be a sample who had high problem solving ability, S-6 as a sample of students who had moderate ability and S-5 as a sample of students who had low ability. After 3 students are selected, diagnostics will be carried out on the results of the problem solving ability test which is adjusted to the scoring rubric on each indicator of mathematical problem solving ability used, taken and developed from Rosyid and Listyani (in Purnamasari, Irma and Setiawan Wahyu, 2019, p. 210). The scoring rubric can be seen in table 5.

**Table 5. Scoring Guidelines for Comprehension Ability Test Questions**

| Ability Indicator | Student Response to Problem | Score |
|---|---|---|
| Identify the problem, understand the problem correctly, write down what is known and asked from the problem presented | Does not understand what is meant by the problem at all | 0 |
| | Did not understand part of what was meant in the problem by mentioning some of what was known and did not mention what was asked in the problem. | 1 |
| | Does not understand part of what is meant in the problem by mentioning what is known and mentioning what is asked in the problem. | 2 |
| | Understand what the problem means, mention what is known and asked in the problem | 3 |
| Planning to solve the problem, writing a mathematical model to solve the problem | No problem-solving plan | 0 |
| | Plans problem solving but does not fit at all with the problem presented | 1 |
| | Planning to solve the problem but there are parts that are not correct | 2 |
| | Able to plan problem solving appropriately | 3 |
| Solve the problem according to the plan, perform arithmetic operations appropriately | Not able to solve the problem at all | 0 |
| | Solving the problem is not in accordance with the plan made | 1 |
| | Solves part of the problem correctly | 2 |
| | Able to solve problems correctly | 3 |
| Evaluate, prove, draw conclusions, and recheck the calculations performed | Does not prove the truth of the matter at all | 0 |
| | Proves the truth of the problem, but the proof is not appropriate | 1 |
| | Can prove the truth of the problem, but incomplete | 2 |
| | Can prove the truth of the problem completely | 3 |

The acquisition of diagnostic results of problem solving ability tests in accordance with the scoring guidelines can be seen in table 6.

**Table 6: Diagnostic Data of Mathematical Problem Solving Ability Test Results**

| No. | Subject | Score of Each Question Item | | | | Total Score | Value |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | | |
| 1 | S-2 | 3 | 3 | 3 | 3 | 12 | 100 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 | S-6 | 3 | 2 | 1 | 3 | 9 | 75 |
| 3 | S-5 | 2 | 2 | 0 | 0 | 4 | 33 |

Based on the diagnostic test results listed in the table above, student data S-2 obtained a score of 100 with the acquisition of points on each question number 1 to 4 is 3 points, which is a perfect score. S-6 scored 75 with the acquisition of point number 1 is 3, number 2 is 2, number 3 is 1 and number 4 is 3 points. S-5 scored 33 with details of pad number 1 getting 2 points, number 2 getting 2 points, number 3 getting 0 points, and number 4 getting 0 points. After being grouped into three categories of problem solving ability with high, medium and low categories, the selected students will be validated for their answers through interviews regarding student confidence. The interview will ask more in-depth questions about students' confidence when working on problems. These questions will be divided into three criteria based on student confidence in the high, medium and low categories. The characteristics of the categorization of high self-confidence criteria can be seen in table 7.

**Table 7 Description of Self-Confidence Categorization**

| No. | Category | Description |
|---|---|---|
| 1 | High | Students believe in their abilities, often show high motivation, and are able to cope well with anxiety. They actively seek alternative solutions and do not give up easily. |
| 2 | Medium | Students feel reasonably confident but sometimes hesitate when facing challenges. They can manage anxiety but may need additional help when facing particularly difficult problems. |
| 3 | Low | These students often doubt their abilities and feel anxious when facing difficult tasks. They may give up quickly and have difficulty managing their anxiety. |

Based on the observation adjusted to the description of the categorization of self-confidence, student S-2 is a student with a high self-confidence category. Student S-6 with low self-confidence category. Student S-5 with low self-confidence category. Next, the questions that will be asked during the interview will be arranged. These questions will be in accordance with the indicators of student self-confidence according to Albert Bandura. The indicators and forms of questions that will be asked to students can be seen in table 8.

**Table 8 Indicators of Student Self-Confidence**

| No. | Indicator | Category | Question |
|---|---|---|---|
| 1 | Confidence in ability | High | Can you tell us about an experience when you successfully solved the most difficult trigonometric comparison problem? How did you feel at that time? |
| | | | How would you rate your ability to solve trigonometry problems compared to your classmates? |
| | | Medium | Are there any problems related to comparative trigonometry that you feel confident enough to solve? Can you give an example? |

| | | | |
|---|---|---|---|
| | | | How do you respond when you encounter trigonometry problems that are a little more difficult than usual? |
| | | Low | Have you ever doubted your ability to solve trigonometric comparison problems? Can you give an example? |
| | | | How did you feel the first time you saw a new trigonometry problem? |
| 2 | Perception of success | High | What do you feel every time you successfully solve a trigonometry problem? |
| | | | How does your success in solving trigonometry problems affect your view of yourself? |
| | | Medium | How do you feel when you successfully solve some trigonometry problems, but fail on others? |
| | | | What do you think of your achievements in trigonometry so far? |
| | | Low | How do you feel when you fail to solve trigonometry problems? |
| | | | What do you do after facing failure in solving trigonometry problems? |
| 3 | Anxiety Management | High | What do you do to stay calm when facing difficult trigonometry problems? |
| | | | How do you deal with anxiety when working on trigonometry problems during exams? |
| | | Medium | Do you feel anxious when doing difficult trigonometry problems? How do you overcome it? |
| | | | Is there a particular technique you use to reduce anxiety when learning trigonometry? |
| | | Low | How often do you feel anxious about trigonometry problems? |
| | | | How does anxiety affect solving trigonometry problems? |
| 4 | Resistance to challenges | High | What do you do if the first way you try doesn't work in solving trigonometry problems? |
| | | | How do you find alternative solutions when dealing with trigonometry problems? |
| | | Medium | What did you do the first time you couldn't solve a trigonometry problem? |
| | | | How often do you seek help when facing difficult trigonometry problems? |
| | | Low | What do you usually do if you can't solve a trigonometry problem after several attempts? |
| | | | How often do you feel like giving up when facing difficult trigonometry problems? |
| 5 | Self Evaluation | High | Do you often evaluate how you solve trigonometry problems? Can you give an example? |
| | | | How did you improve your problem-solving method after evaluating it? |

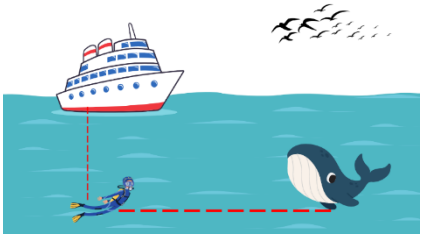
| | | | |
|---|---|---|---|
| | | Medium | How often do you evaluate the mistakes you make in solving trigonometry problems? |
| | | | What did you do to correct the error in solving the trigonometry problem? |
| | | Low | Do you find it difficult to evaluate and improve the way you solve trigonometry problems? Why is this the case? |
| | | | How often do you evaluate the methods you use in solving trigonometry problems? |
| 6 | Motivation and effort | High | How hard do you try to solve difficult trigonometry problems? What motivates you? |
| | | | Do you feel motivated to learn more about trigonometry? Why is that? |
| | | Medium | How often do you strive to solve difficult trigonometry problems? |
| | | | What makes you feel motivated or unmotivated in learning trigonometry? |
| | | Low | How hard do you find it to try to solve trigonometry problems? |
| | | | What makes you feel unmotivated to learn more about trigonometry? |

Next, we will analyze the results of student answers on the student problem solving ability test.

**Indicator 1**: Identify the problem, understand the problem correctly, write down what is known and asked from the problem presented.

Problem number 1

***Take a look at the following picture!***



A diver is directly beneath a ship at a distance of 10 $m$ below the surface of the sea. He is observing a whale that is right in front of him. The angle of depression formed between the ship and the whale is 30°. Based on this information, analyze the information obtained. Is the information sufficient to determine the distance between the diver and the whale?

The results of the test of mathematical problem solving ability of students with high categories in question number 1 can be seen in Figure 1.

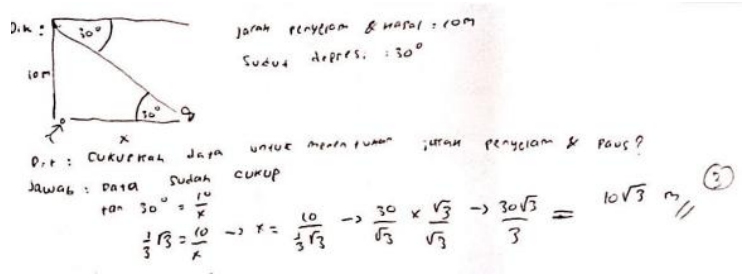


**Figure 1:** Test results of Student S-2 High Category Problem Solving Ability

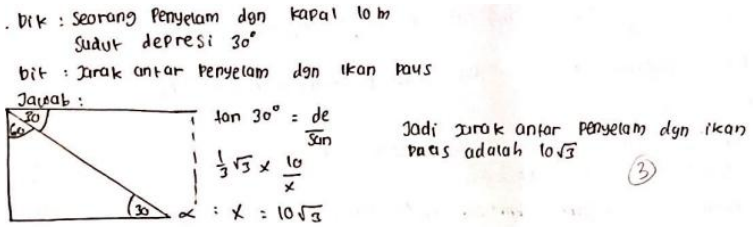


**Figure 2:** Test results of Student S-2 Moderate Category Problem Solving Ability

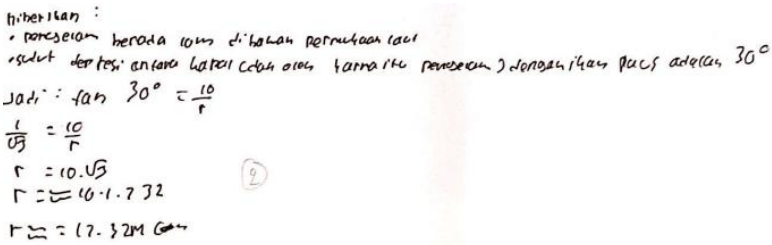


**Figure 3:** Test results of Student S-2 Low Category Problem Solving Ability

***Analysis***

Based on the results of students' answers to problem number 1, it is obtained that student S-2 who has high category problem solving ability, student S-6 who has medium category ability and student S-5 who has low category ability, is able to mention the known and asked information to get the answer correctly. So it can be concluded that both students S-2, S-6 and S-5 both have the ability to identify problems, understand the problem correctly, write down what is known and asked from the problem presented.

**Indicator 2**: Planning for problem solving, writing a mathematical model to solve the problem.

Problem number 2

| |
|---|
| The length of the short hand of a wall clock is 68 $mm$. When the short hand shows the time 02.00, find a strategy to determine the distance between the tip of the short hand and the horizontal line through the center of the wall clock. |

The test results of mathematical problem solving ability of students with male and female gender in the high category of question number 2 can be seen in table 4.

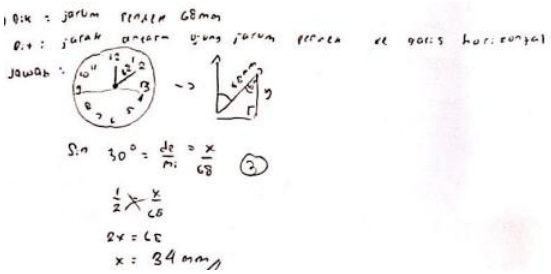


**Figure 1:** Test results of Student S-2 High Category Problem Solving Ability

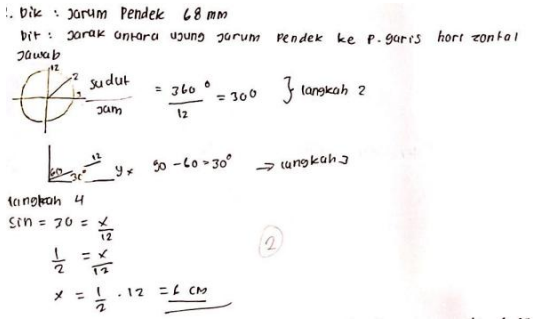


**Figure 2:** Test results of Student S-2 Moderate Category Problem Solving Ability

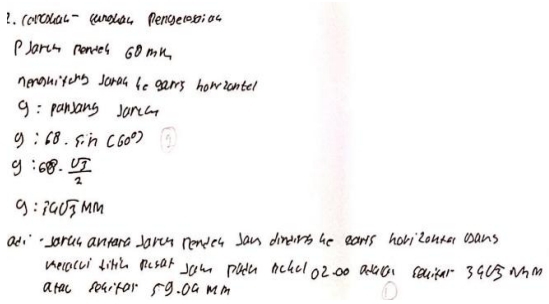


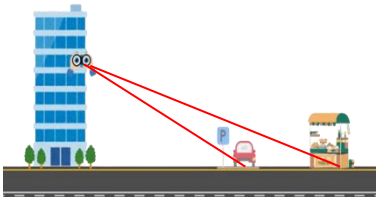
**Figure 3:** Test results of Student S-2 Low Category Problem Solving Ability

***Analysis***

Based on the results of students' answers to question number 2, the differences in answers from the three students were obtained. Student S-2 answered completely and was able to make a mathematical model of the problem correctly. Student S-6 is able to make a mathematical model, can have the right formula but there are errors during the calculation process. Student S-5 has not been able to make a mathematical model, but the selection of the formula is correct but there are errors during the calculation. So it can be concluded that student S-2 is able to plan problem solving, write a mathematical model to solve the problem. S-6 is quite capable of planning problem solving, writing mathematical models to solve problems. and S-5 has not been able to plan problem solving, writing mathematical models to solve problems.

**Indicator 3:** Solve the problem according to the plan, perform arithmetic operations appropriately

***Take a look at the following picture!***



A hotel consists of eight floors and specifically for the first floor it has a height of 3,5 $m$. From the second floor to the eighth floor, the height of each floor is the same. A person observes from the sixth floor of the building looking towards the parking lot and the food stall. If the slope distance between where the observer is located to the parking lot is $18{,}5\sqrt{2}\ m$. The distance between the parking lot and the food stall 2,5 $m$. The angle formed between the observer and the parking lot is 45° and the angle formed between the observer and the food stall is 41.35.°. What is the height of the building and the distance from the parking lot to the food stall?
(***Ket:*** $sin\ sin\ 41{,}35° = 0{,}66$ ;$cos\ cos\ 41{,}35° = 0{,}75$***; and*** $tan\ tan\ 41{,}35° = 0{,}88$**)**

The test results of mathematical problem solving ability of students with male and female gender in the high category of question number 3 can be seen in table 4.

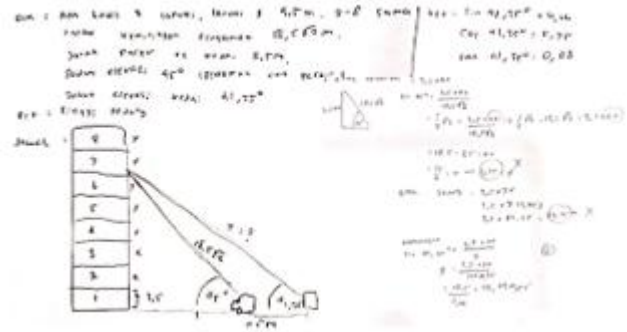


**Figure 1:** Test results of Student S-2 High Category Problem Solving Ability

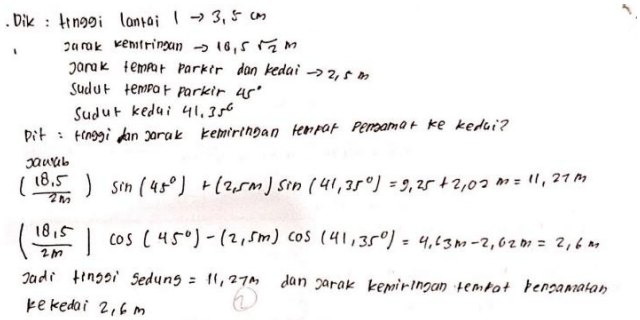



**Figure 2:** Test results of Student S-2 Medium Category Problem Solving Ability

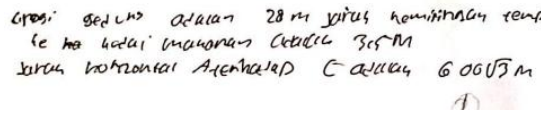


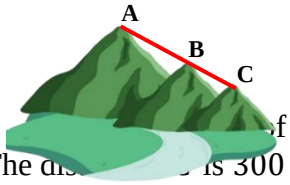
**Figure 3:** Test results of Student S-2 Low Category Problem Solving Ability

***Analysis***

Based on the results of students' answers to problem number 3, the differences in answers from the three students were obtained. Student S-2 answered completely and solved the problem correctly. Student S-6 is quite capable of making the solution correctly, this is because there are errors when selecting formulas and solutions that are not according to plan so that they have not been able to solve the problem. Student S-5 has not been able to solve the problem, it can be seen from the results of his answers which only write information but cannot solve the problem. So it can be concluded that student S-2 is able to solve the problem according to the plan, perform the calculation operation correctly**.** S-6 is quite able to solve the problem but not according to the plan, performing arithmetic operations incorrectly. S-5 has not been able to solve the problem according to the plan, performing arithmetic operations appropriately.

**Indicator 4:** Evaluating, proving, drawing conclusions, and rechecking the calculations performed

***Look at the cusp points A, B, and C in the image below!***




f the point elevation angle $C$ with respect to the point $B$ is 30° . The di s 300 $m$ and the distance is $AB = 900\ m$. Prove that the horizontal distance of A to C is $6000\sqrt{3}$.

The test results of mathematical problem solving ability of students with male and female gender in the high category of question number 4 can be seen in table 4.

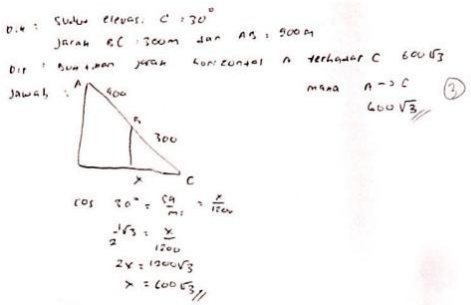


**Figure 1:** Test results of Student S-2 High Category Problem Solving Ability

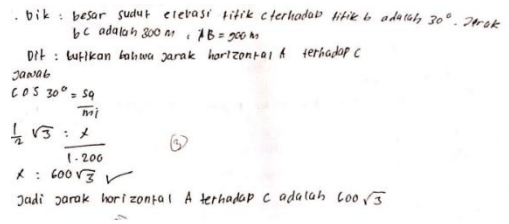


**Figure 2:** Test results of Student S-2 Moderate Category Problem Solving Ability

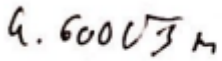


**Figure 3:** Test results of Student S-2 Low Category Problem Solving Ability

***Analysis***

Based on the results of students' answers to problem number 4, the differences in answers from the three students were obtained. Students S-2 and S-6 answered completely and solved the problem correctly. Meanwhile, student S-5 has not been able to answer the question. So it can be concluded that students S-2 and S-6 are able to evaluate, prove, draw conclusions, and recheck the calculations made. While S-5 has not been able to evaluate, prove, draw conclusions, and recheck the calculations made.

## CONCLUSION

Based on the analysis and explanation of the research results, it can be concluded that the level of self-confidence in the problem solving ability of high school students can be described as follows: 1) students who have high self-confidence can meet the criteria according to the indicators of problem solving ability according to Polya's indicators, namely being able to understand the problem, can make a plan, complete the plan and can see the answer again. 2) students who have moderate self-confidence can meet the criteria according to the indicators of problem solving ability according to Polya, namely being able to understand the problem, can make plans, complete plans, but have not been able to see all the answers, and 3) students who have low self-confidence have difficulty understanding, unable to plan, and complete the solution plan and cannot see all the answers.

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## REFERENCES

Fasni, N. (2017). *Peningkatan Kemampuan Pemecahan Masalah Matematis Dan Self Confidence Siswa Smp Melalui "Ang's Framework" For Mathematical Modelling Instruction: Penelitian Kuasi Eksperimen Pada Siswa Smp Kelas Viii*. Universitas Pendidikan Indonesia.

Pehkonen, E. (2007). Problem Solving In Mathematics Education In Finland. *Wg2, Topic*, *8*(9).

Pujiastuti, H. (2020). Analisis Kemampuan Pemecahan Masalah Matematik Siswa Smp Pada Materi Bilangan Bulat. *Aksioma: Jurnal Matematika Dan Pendidikan Matematika*, *11*(1), 70–81.

Ramdan, Z. M., Veralita, L., Rohaeti, E. E., & Purwasih, R. (2018). Analisis Self Confidence Terhadap Kemampuan Pemecahan Masalah Matematis Siswa Smk Pada Materi Barisan Dan Deret. *Aksioma: Jurnal Program Studi Pendidikan Matematika*, *7*(2), 171–179.

Sugiyono. (2020). *Metode Penelitian Pendidikan*. Alfabeta.

Sumartini, T. S. (2016). Peningkatan Kemampuan Pemecahan Masalah Matematis Siswa Melalui Pembelajaran Berbasis Masalah. *Mosharafa: Jurnal Pendidikan Matematika*, *5*(2), 148–158.

Ulya, H. (2016). Profil Kemampuan Pemecahan Masalah Siswa Bermotivasi Belajar Tinggi Berdasarkan Ideal Problem Solving. *Jurnal Konseling Gusjigang*, *2*(1).

Viitala, H. (2018). Studying Pupils' Mathematical Thinking Through Problem Solving And View Of Mathematics: Case Studies Of Finnish Comprehensive School Pupils. *Doctoral Dissertations At University Of Agder*.

Wilson, J. W., Fernandez, M. L., & Hadaway, N. (1993). Mathematical Problem Solving. *Research Ideas For The Classroom: High School Mathematics*, *57*, 78.