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ANALYSIS OF GRADE IX JUNIOR HIGH SCHOOL STUDENTS' MATHEMATICAL CONCEPTUAL UNDERSTANDING IN SOLVING QUADRILATERAL PROBLEMS

Desri Rizkia Nurfarihah*[1], Indra Budiman[2], Dani Firmansyah [3]
[1,2,3] Universitas Singaperbangsa Karawang

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ABSTRACT

The purpose of this study was to describe the mathematical concept understanding of ninth-grade junior high school students in solving problems involving quadrilaterals. A quantitative descriptive method was used on a sample of 38 students. The research instrument consisted of an essay test based on indicators of concept understanding, including the ability to verbally restate concepts, classify objects, and present concepts in various forms of mathematical representation. The research results showed that students' mathematical conceptual understanding fell into the moderate category with an average score of 72. Based on the grouping results, there were 11 students in the high category, 20 in the moderate category, and 7 in the low category. Students in the high category met most of the indicators, while students in the moderate and low categories still experienced difficulties, particularly with the mathematical representation indicator. Overall, students' mathematical concept understanding was not uniform, so learning efforts are needed that place greater emphasis on strengthening concept understanding.

Corresponding Author:

Desri Rizkia Nurfarihah,
Departement of Mathematics Education,
Universitas Singaperbangsa Karawang, Indonesia
Email: 2210631050005@student.unsika.ac.id

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1. INTRODUCTION

The development of science and technology requires students to possess logical, analytical, systematic, and critical thinking skills through mathematics learning. Therefore,

mathematics is one of the compulsory subjects taught at every level of education (Putri et al., 2022; Septiana et al., 2022). However, mathematics is still often considered a difficult subject by most students because it involves many abstract concepts that must be understood (Hudiyagama & Farahsanti, 2026). n the learning process, not all students are able to understand mathematical concepts optimally, resulting in various difficulties in connecting, explaining, and applying concepts appropriately in solving mathematical problems.

Based on the Regulation of the Minister of National Education Number 22 of 2006, conceptual understanding is one of the important competencies that students must possess in mathematics learning (Departemen Pendidikan Nasional, 2006). Conceptual understanding serves as the foundation for students to develop mathematical thinking skills and solve problems effectively. Students with good conceptual understanding tend to solve problems rationally, systematically, and accurately compared to students who only memorize procedures (Liberna & Lestari, 2024). In addition, the ability to understand concepts is one of the main factors influencing success in learning mathematics (Lumi et al., 2025).

Mathematical conceptual understanding refers to students' ability to understand, interpret, and relate various mathematical concepts and express them in different forms of mathematical representation (Kilpatrick et al., 2001; Sengkey et al., 2023). This ability emphasizes not only mastery of formulas, but also students' ability to restate concepts, relate one concept to another, and apply them in various problem-solving situations (Giawa et al., 2022). Therefore, mathematical conceptual understanding is one of the fundamental abilities that need to be developed in mathematics learning.

Students' mathematical conceptual understanding can be identified through several indicators. According Kilpatrick et al. (2001), he indicators of conceptual understanding include the ability to restate concepts in one's own words, classify objects based on certain properties according to the concept, represent concepts in various forms of mathematical representation, and apply concepts or procedures appropriately. These indicators show that conceptual understanding is not only related to memorization skills, but also to the ability to understand the meaning and relationships among mathematical concepts comprehensively.

Various studies have shown that students' mathematical conceptual understanding is still at a low to moderate level. Research conducted by Halawa et al. (2025) evealed that most students were in the low and moderate categories in understanding mathematical concepts. Students still experienced difficulties in several indicators of conceptual understanding and frequently made errors in calculation processes. Similarly, Suningsih & Maryati (2023) found that the conceptual understanding ability of seventh-grade junior high school students was relatively low, as indicated by the many mistakes students made in solving problems based on conceptual understanding indicators. In addition, Marisah et al. (2025) showed that students' conceptual understanding abilities still varied and were not evenly distributed across each indicator. These findings indicate that students' mathematical conceptual understanding still requires serious attention in mathematics learning.

Although many studies on mathematical conceptual understanding have been conducted, most of them only analyze conceptual understanding in general and do not specifically examine students' conceptual understanding of quadrilateral topics based on indicators of mathematical conceptual understanding. In fact, quadrilateral material is one of the geometry topics that requires strong conceptual understanding because it involves relationships among shape properties, shape classification, and visual and symbolic representations. Students often experience difficulties in distinguishing the properties of different types of quadrilaterals and relating these concepts in solving geometry problems. Therefore, analyzing students' mathematical conceptual understanding in quadrilateral topics is important to identify students' difficulties more deeply.

Based on the explanation above, this study aims to describe the mathematical conceptual understanding ability of ninth-grade junior high school students in solving quadrilateral problems based on three indicators: the ability to restate concepts verbally, classify objects according to concepts, and represent concepts in various forms of mathematical representation. The results of this study are expected to provide an overview of students' mathematical conceptual understanding abilities and serve as evaluation material for improving the quality of mathematics learning in schools.

2. METHOD

This study employed a quantitative descriptive approach to describe students' mathematical conceptual understanding in solving quadrilateral problems. A quantitative descriptive approach was used because the study focused on describing students' abilities based on numerical data without providing any specific treatment to the research subjects (Sugiyono, 2023; Sulistyawati et al., 2022). hrough this approach, the researcher obtained an overview of students' levels of mathematical conceptual understanding based on predetermined indicators.

The population of this study consisted of all ninth-grade students at a public junior high school in Karawang Regency in the 2025/2026 academic year. The sample was taken from class IX-L, which consisted of 38 students. The sampling technique used was purposive sampling, which is a technique for selecting samples based on specific considerations in accordance with the research objectives (Sugiyono, 2023). Class IX-L was selected because the students had studied quadrilateral topics and demonstrated heterogeneous academic abilities based on the mathematics teacher's recommendation.

The research instrument was an essay test on mathematical conceptual understanding developed based on the indicators of conceptual understanding proposed by Kilpatrick et al. (2001). The instrument referred to the study conducted by Verina & Darhim (2023) and was then adjusted to the research objectives and the characteristics of quadrilateral material. The indicators used included the ability to restate concepts verbally, classify objects based on properties that correspond to the concept, and represent concepts in various forms of mathematical representation. The instrument consisted of three essay questions, each representing one indicator of mathematical conceptual understanding.

Before being used in the study, the instrument underwent a content validation process conducted by two mathematics education lecturers and one junior high school mathematics teacher to assess the suitability of the indicators, material, question construction, and language use. The validation results indicated that the instrument was appropriate for use with several revisions to the wording of the questions to make them easier for students to understand. The blueprint of the research instrument is presented in table 1.

Table 1. Blueprint of the Mathematical Conceptual Understanding Instrument

No.	Indicators of Mathematical Conceptual Understanding	Question Indicators	Question Number
1	Restating concepts verbally	Students are able to mention the names of plane figures and explain their properties using their own words	1
2	Classifying objects based on specific properties according to the concept	Students are able to determine plane figures that meet certain conditions based on the properties of quadrilaterals	2
3	Representing concepts in various forms of mathematical representation	Students are able to represent contextual problems into diagrams or mathematical models	3

Data collection was conducted through a written test administered to all research subjects. The test was used to obtain data regarding students' mathematical conceptual understanding of quadrilateral material. Each student's answer was assessed using a scoring rubric based on the indicators of mathematical conceptual understanding. The obtained scores were then converted into values using the following formula:

$$Score = \frac{Obtained\ Score}{Maximum\ Score} \times 100$$

The research data were analyzed using quantitative descriptive analysis techniques. The analysis was carried out by calculating the mean and standard deviation to determine the categories of students' mathematical conceptual understanding abilities. The categorization of students' abilities referred to the criteria proposed by Arikunto (2019) in Prameswari & Abadi (2025), as presented in Table 2.

Table 2. Research Data Results

Criteria	Category
$x \geq \bar{x} + SD$	High
$\bar{x} - SD < x < \bar{x} + SD$	Moderate
$x \leq \bar{x} - SD$	Low

Notes:

x = Student score

$\bar{x}$ = Mean score of students

SD = Standard deviation

In addition to quantitative analysis, a descriptive analysis of students' answers was also conducted to identify forms of mathematical conceptual understanding based on each research indicator. This analysis was used to support the quantitative results in order to obtain a more comprehensive description of students' mathematical conceptual understanding in solving quadrilateral problems.

3. RESULT AND DISCUSSION

3.1. Result

The data were obtained from students' written test answers administered to measure their understanding of mathematical concepts. Based on the results, information was obtained regarding the number of students (N), mean score, highest score (max), lowest score (min), and standard deviation (SD). The data are presented in the following table.

Table 3. Research Data Results

N	Mean	Max	Min	SD
38	72	92	50	11

Based on the data in the table, students in class IX-L obtained an average score of 72, with the highest score of 92 and the lowest score of 50. Meanwhile, the standard deviation obtained was 11.

The following are the results of the student classification based on the predetermined criteria.

Table 4. Student Category Criteria

Category	Score Interval	Number of Students
High	$x \geq 83$	11
Moderate	$60 < x < 83$	20
Low	$x \leq 60$	7

Based on the classification results, 11 students were categorized as high, 20 students as moderate, and 7 students as low. Based on the indicators used, one student from each category was selected as the focus of a more comprehensive analysis to obtain a clearer description of conceptual understanding.

1. High Category Student
   a. Restating concepts verbally

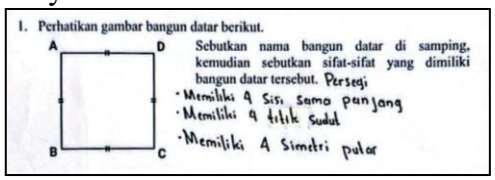

Figure 1. Answer to Question Number 1

Based on the figure, the student identified the plane figure as a square and mentioned several of its properties, namely having four equal sides, four angles, and four rotational symmetries.

   b. Classifying objects based on the presence or absence of conditions forming a concept

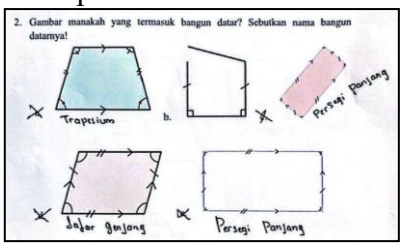

Figure 2. Answer to Question Number 2

Based on the figure, the student classified several objects as plane figures. However, there was one section left unanswered, indicating that the student's understanding of the indicator was not yet fully comprehensive.

   c. Representing concepts in various forms of mathematical representation

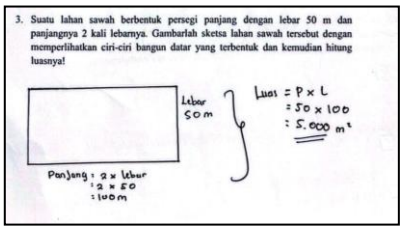

Figure 3. Answer to Question Number 3

Based on the figure, the student drew a rectangle sketch, wrote the relationship between length and width, and correctly calculated the area, indicating that the student was able to appropriately connect visual and symbolic representations.

2. Moderate Category Student
   a. Restating concepts verbally

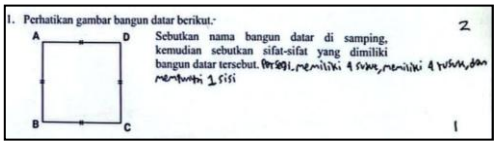

Figure 4. Answer to Question Number 1

Based on the figure, the student wrote the name of the plane figure as a square and mentioned several of its properties. However, the explanation provided was incomplete and still contained inaccuracies, indicating that the student's conceptual understanding was still limited.

b. Classifying objects based on the presence or absence of conditions forming a concept

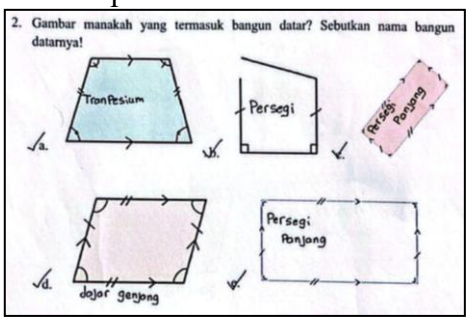

Figure 5. Answer to Question Number 2

Based on the figure, the student grouped the given objects as plane figures. The student identified several figures by providing the appropriate names of the plane figures.

c. Representing concepts in various forms of mathematical representation

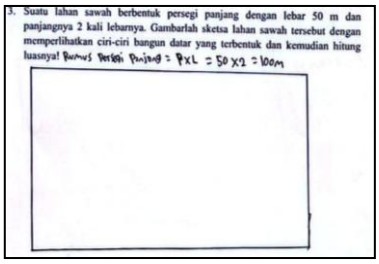

Figure 6. Answer to Question Number 3

Based on the figure, the student drew a rectangle sketch and wrote the relationship between length and width. The student also performed calculations; however, the answer did not correspond to the problem.

3. Low Category Student

a. Restating concepts verbally

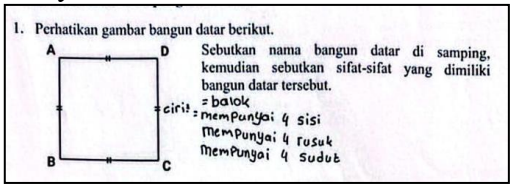

Figure 7. Answer to Question Number 1

Based on the figure, the student wrote the name of the figure incorrectly. In addition, the properties written were also inconsistent with the intended concept, indicating that the student had not yet understood the basic concept correctly.

b. Classifying objects based on the presence or absence of conditions forming a concept

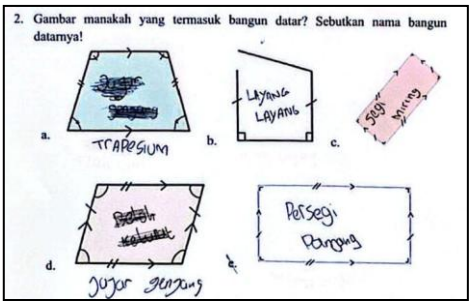

Figure 8. Answer to Question Number 2

Based on the figure, the student identified only some objects as plane figures, while other objects that should have been classified as plane figures were not selected.

c. Representing concepts in various forms of mathematical representation

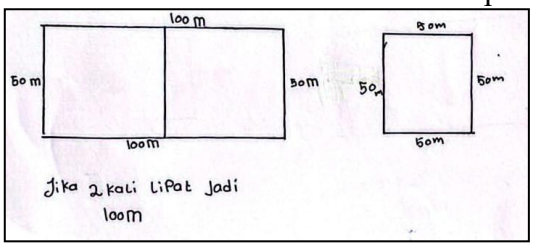

Figure 9. Answer to Question Number 9

Based on the figure, the student drew more than one plane figure, but the drawings did not match the problem and the student did not continue to the calculation stage, indicating that the student experienced difficulties in applying the concept procedurally.

3.2. Discussion

The results of the study showed that the mathematical conceptual understanding ability of ninth-grade students on quadrilateral topics was in the moderate category. This can be seen from the students' average score of 72, with most students falling into the moderate category. These findings indicate that most students have understood the basic concepts of quadrilaterals; however, their understanding is not yet fully developed and cannot be consistently applied in various problem-solving situations. This condition is consistent with the studies conducted by Aisyah & Marlina (2025), Herlina et al. (2025), and Musa et al. (2024), which stated that students' mathematical conceptual understanding is still at a moderate level and has not been evenly achieved across all indicators. This suggests that students still experience difficulties in connecting concepts, understanding the properties of shapes, and applying concepts in different situations.

In the indicator of restating concepts verbally, students in the high category were able to explain the concept of a square correctly and mention its properties completely. This ability indicates that the students already possessed a good conceptual understanding of the characteristics of quadrilaterals. In contrast, students in the moderate and low categories still experienced difficulties in explaining concepts accurately and comprehensively. Some students were only able to mention the name of the shape without providing appropriate explanations regarding its properties. Furthermore, students in the low category were found to incorrectly identify the types of shapes and their characteristics. These errors indicate that the students had not fully understood the fundamental concepts of plane geometry. According to Kilpatrick et al. (2001), he ability to restate concepts is one of the main indicators of conceptual understanding because it demonstrates the extent to which students

understand the meaning of a concept rather than merely memorizing definitions. These findings are in line with the studies of Giriansyah et al. (2023) and Susmina & Marlina (2024), which stated that students tend to recognize concepts in general terms but are not yet able to explain them completely using appropriate mathematical language.

In the indicator of classifying objects based on certain properties, students in the high and moderate categories were relatively able to determine which objects belonged to quadrilaterals according to their characteristics. However, some students still made mistakes in grouping shapes that have similar properties. Meanwhile, students in the low category were only able to identify some objects and still experienced errors in determining shapes that met certain conditions. These mistakes indicate that students had not yet understood the hierarchical relationships among the properties of quadrilaterals. In geometry learning, the ability to classify shapes requires not only the ability to recognize visual forms but also the ability to understand the relationships among concepts and the properties of shapes conceptually (Van de Walle et al., 2019). Students' difficulties in classifying plane figures indicate that their conceptual understanding is still partial and has not been fully integrated. These findings are consistent with the study by Kawiyah et al. (2022), which stated that classification ability is strongly influenced by students' level of mathematical conceptual understanding.

In the indicator of presenting concepts in various forms of mathematical representation, students in the high category were able to draw shape sketches correctly, determine the relationships among the elements of the shapes, and perform calculations accurately. This indicates that students were able to connect visual, symbolic, and numerical representations in solving problems. On the other hand, students in the moderate and low categories experienced difficulties in translating problem information into appropriate mathematical representations. Some students were able to draw the shapes but could not continue the calculation process correctly. In addition, some students drew shapes that did not match the problems, resulting in inaccurate solutions. These errors indicate that students were not yet able to connect geometric concepts with mathematical procedures appropriately.

Mathematical representation ability is an important part of mathematics learning because it helps students understand relationships among concepts and facilitates the problem-solving process (NCTM, 2000). Students' difficulties in the representation indicator indicate that they are not yet accustomed to using various forms of representation in mathematics learning. Learning practices that tend to emphasize the procedural use of formulas cause students to experience difficulties when transforming visual information into symbolic and numerical forms. These findings are in line with the studies of Fatrina et al. (2025) and Mulyadi & Manoy (2022), which stated that mathematical representation ability remains one of the main obstacles faced by students in solving mathematical problems.

Overall, the results of the study indicate that not all students were able to fulfill the indicators of mathematical conceptual understanding optimally. Some students still experienced errors in understanding the properties of shapes, classifying objects, and connecting concepts into various forms of mathematical representation. These findings suggest that students' mathematical conceptual understanding of quadrilateral topics still needs to be improved through learning that emphasizes concept exploration, geometric visualization, and the use of various forms of mathematical representation. Teachers need to provide opportunities for students to explain concepts using their own language, identify relationships among shapes, and solve contextual problems involving visual and symbolic representations. In this way, students will not only understand concepts procedurally but also develop deeper conceptual understanding. The findings of this study support the results of studies conducted by Sulasih & Firmansyah (2025), Aisyah & Firmansyah (2021), and

Rochma et al. (2023), which stated that mathematical conceptual understanding can be considered good when students are able to fulfill all indicators of conceptual understanding accurately and consistently.

4. CONCLUSION

Students' mathematical conceptual understanding in the topic of quadrilaterals was categorized as moderate, with an average score of 72 and the majority of students falling into this category. Students in the high category generally fulfilled the indicators of conceptual understanding. Meanwhile, students in the moderate category demonstrated fairly good understanding, although it was not yet optimal. In contrast, students in the low category experienced difficulties in almost all indicators. Overall, students' mathematical conceptual understanding was not evenly distributed, and not all indicators were achieved optimally.

Based on the findings of this study, teachers are recommended to implement more varied and contextual learning strategies that can encourage students' active participation in the learning process. Furthermore, future researchers are encouraged to develop or examine learning models and media that can improve students' mathematical conceptual understanding, as well as to involve broader samples and different materials in order to obtain more comprehensive results.

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REFERENCES

Aisyah, A., & Marlina, R. (2025). Analisis Kemampuan Pemahaman Konsep Matematis Siswa SMP pada Materi Aljabar. *RADIAN Journal: Research and Review*, *4*(1), 8–17. https://doi.org/10.35706/radian.v4i1.13166

Aisyah, N., & Firmansyah, D. (2021). Analisis Kemampuan Pemahaman Konsep Matematis Siswa SMP pada Materi Bangun Datar Segiempat. *MAJU*, *8*(1), 403–410.

Departemen Pendidikan Nasional. (2006). *Peraturan Menteri Pendidikan Nasional Republik Indonesia Nomor 22 Tahun 2006 tentang Standar Isi untuk Satuan Pendidikan Dasar dan Menengah*. Departemen Pendidikan Nasional.

Fatrina, A., Nuraeni, Z., Mulyono, B., Yukans, S. S., & Mansur, N. (2025). Kemampuan Representasi Matematis Siswa Kelas VII Menggunakan Problem Based Learning Berbantuan E-LKPD. *SJME (Supremum Journal of Mathematics Education)*, *09*(1), 197–212.

Giriansyah, F. E., Pujiastuti, H., & Ihsanudin, I. (2023). Kemampuan Pemahaman Matematis Siswa Berdasarkan Teori Skemp Ditinjau dari Gaya Belajar. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, *07*(1), 751–765. https://doi.org/10.31004/cendekia.v6i3.1515

Halawa, F., Telaumbanua, Y. N., Harefa, A. O., & Mendrofa, R. N. (2025). Analisis Kemampuan Pemahaman Konsep Matematis Siswa pada Pembelajaran Matematika. *Kognitif: Jurnal Riset HOTS Pendidikan Matematika*, *5*(1), 1–18. https://doi.org/10.51574/kognitif.v5i1.2625

Herlina, E. H., Novianti, S. N., & Maryono, I. (2025). Tingkat Pemahaman Konsep Matematis Siswa dalam Menyelesaikan Soal HOTS pada Materi Perbandingan. *Jurnal Analisa*, *11*(2), 103–116. https://doi.org/10.15575/ja.v11i2.48962

Hudiyagama, A., & Farahsanti, I. (2026). Analisis Kesulitan Belajar Matematika Pada Siswa Sekolah Menengah Pertama. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, *10*(1), 504–513. https://doi.org/10.31004/cendekia.v10i1.4871

Kawiyah, W. N., Suhendri, H., & Alfin, E. (2022). Analisis Kemampuan Pemahaman Konsep Matematika Siswa Kelas VIII MTS At-Taqwa Bekasi pada Materi Lingkaran. *Lebesgue: Jurnal Ilmiah Pendidikan Matematika, Matematika dan Statistika*, *3*(2), 417–424. https://doi.org/10.46306/lb.v3i2.147

Kilpatrick, J., Swafford, J., & Findell, B. (2001). *Adding It Up: Helping Children Learn Mathematics*. National Academy Press.

Liberna, H., & Lestari, W. (2024). Kemampuan Pemahaman Konsep Matematika Ditinjau dari Self Concepts dan Lingkungan Belajar. *Lemma: Letters of Mathematics Education*, *10*(2), 120–133. https://doi.org/10.22202/jl.2024.v10i2.8137

Lumi, E. F., Sulangi, V. R., & Regar, V. E. (2025). Profil Kemampuan Dasar Matematika Mahasiswa Baru di FMIPA-K Universitas Negeri Manado. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, *08*(3), 2015–2025. https://doi.org/10.31004/cendekia.v8i3.3533

Marisah, Septiani, G., Pratama, A. B., Rahmawati, S., Rahmadani, A. O., Putri, S. M., Febrian, & Astuti, P. (2025). Analisis Kemampuan Pemahaman Konsep Matematis Siswa SMP Materi Bangun Ruang Konteks Bubu. *Prosiding Diskusi Panel Nasional Pendidikan Matematika*, *11*, 347–358.

Mulyadi, N. A., & Manoy, J. T. (2022). Representasi Siswa dengan Kemampuan Matematis Tinggi dalam Memecahkan Masalah Matematika. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, *06*(1), 533–546.

Musa, R. N., Monoarfa, J. F., & Regar, V. E. (2024). Pemahaman Konsep Matematis Siswa dalam Menyelesaikan Soal Cerita Materi Barisan dan Deret Kelas X. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, *08*(2), 1040–1048. https://doi.org/10.31004/cendekia.v8i1.3031

NCTM. (2000). *Principles an Standards for School Mathematics*. National Council of Teachers of Mathematics.

Prameswari, A. D., & Abadi, A. P. (2025). Analisis Kemampuan Pemecahan Masalah Siswa Kelas X SMA pada Materi Barisan Aritmetika. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, *09*(1), 486–497. https://doi.org/10.31004/cendekia.v9i1.3954

Putri, R. D. R., Ratnasari, T., Trimadani, D., Halimatussakdiah, Husna, E. N., & Yulianti, W. (2022). Pentingnya Keterampilan Abad 21 Dalam Pembelajaran Matematika. *SICEDU : Science and Education Journal*, *1*(2), 449–459. https://doi.org/10.31004/sicedu.v1i2.64

Rochma, N. A., Suwanti, V., & Pranyata, Y. I. P. (2023). Analisis Kemampuan Pemahaman

Konsep Siswa dalam Menyelesaikan Masalah Perbandingan Berdasarkan Teori Pirie-Kieren (An analysis of Students ' Understand Concepts Ability in Solving Proportion Problems Based on Pirie-Kieren Theory). *JMPM: Jurnal Matematika dan Pendidikan Matematika*, *8*(2), 100–113. https://doi.org/10.26594/jmpm.v8i2.3889

Sengkey, D. J., Sampoerno, P. D., & Aziz, T. A. (2023). Kemampuan Pemahaman Konsep Matematis: Sebuah Kajian Literatur. *GRIYA Journal of Mathematics Education and Application*, *3*(1), 67–74.

Septiana, A., Amin, I. I., Soebagyo, J., & Nuriadin, I. (2022). Studi Literatur: Pendekatan Pendidikan Matematika Realistik dalam Pembelajaran Matematika. *Teorema: Teori dan Riset Matematika*, *7*(2), 343–350. https://doi.org/10.25157/teorema.v7i2.7090

Sugiyono. (2023). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta, CV.

Sulasih, S., & Firmansyah, D. (2025). Analisis Kemampuan Pemahaman Konsep Matematis Siswa SMP pada Pembelajaran Matematika. *JMES (Journal Mathematics Education Sigma)*, *6*(1), 80–90. https://doi.org/10.30596/jmes.v6i1.21022

Sulistyawati, W., Wahyudi, & Trinuryono, S. (2022). Analisis (Deskriptif Kuantitatif) Motivasi Belajar Siswa dengan Model Blended Learning di Masa Pandemi Covid19. *Kadikma*, *13*(1), 68–73.

Suningsih, T., & Maryati, I. (2023). Analisis Kemampuan Pemahaman Konsep Matematis Siswa pada Materi Garis dan Sudut. *Jurnal Padegogik*, *6*(2), 19–28. https://doi.org/10.35974/jpd.v6i2.3133

Susmina, H., & Marlina, R. (2024). Kemampuan Pemahaman Konsep Matematis Siswa Kelas X Pada Materi Barisan dan Deret. *Jurnal Educatio*, *10*(2), 387–397. https://doi.org/10.31949/educatio.v1i2.7131

Verina, I., & Darhim. (2023). Kemampuan Pemahaman Konsep Matematis Siswa SMP Kelas VIII Pada Topik Persegi Panjang. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *12*(2), 2063–2076. https://doi.org/10.24127/ajpm.v12i2.7581