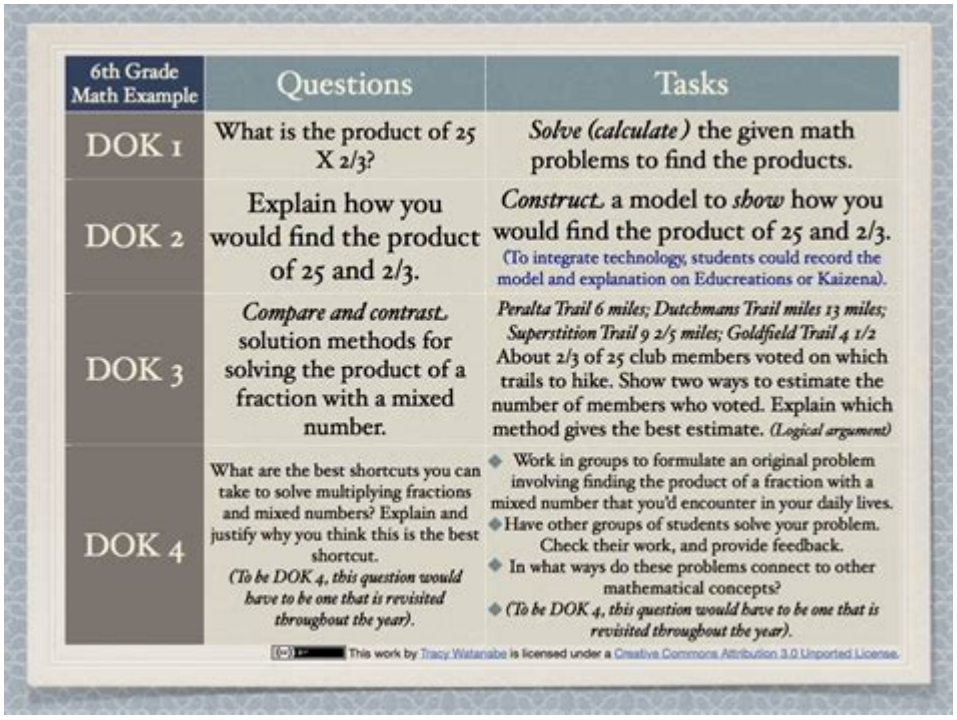
Examples Of Dok Questions For Math



6th Grade Math Example	Questions	Tasks
DOK 1	What is the product of 25 X 2/3?	*Solve (calculate)* the given math problems to find the products.
DOK 2	Explain how you would find the product of 25 and 2/3.	*Construct* a model to *show* how you would find the product of 25 and 2/3. (To integrate technology, students could record the model and explanation on Educreations or Kaizena).
DOK 3	*Compare and contrast* solution methods for solving the product of a fraction with a mixed number.	*Peralta Trail 6 miles; Dutchmans Trail miles 13 miles; Superstition Trail 9 2/5 miles; Goldfield Trail 4 1/2* About 2/3 of 25 club members voted on which trails to hike. Show two ways to estimate the number of members who voted. Explain which method gives the best estimate. *(Logical argument)*
DOK 4	What are the best shortcuts you can take to solve multiplying fractions and mixed numbers? Explain and justify why you think this is the best shortcut. *(To be DOK 4, this question would have to be one that is revisited throughout the year).*	◆ Work in groups to formulate an original problem involving finding the product of a fraction with a mixed number that you'd encounter in your daily lives. ◆ Have other groups of students solve your problem. Check their work, and provide feedback. ◆ In what ways do these problems connect to other mathematical concepts? ◆ *(To be DOK 4, this question would have to be one that is revisited throughout the year).*

Examples of DOK Questions for Math are essential tools for educators aiming to assess student understanding at various cognitive levels. The Depth of Knowledge (DOK) framework, developed by Norman Webb, categorizes tasks according to the complexity of thinking required to complete them. In mathematics, DOK questions encourage students to think critically, apply their knowledge in various contexts, and demonstrate their understanding of mathematical concepts. This article will provide examples of DOK questions in math, categorized by the four levels of Webb's DOK framework.

Understanding the DOK Levels

Before diving into specific examples, let’s briefly review the four levels of DOK:

- DOK Level 1: Recall and Reproduction
Tasks at this level require students to recall facts, information, or procedures. They involve straightforward responses and often include basic calculations or definitions.

- DOK Level 2: Skills and Concepts
These questions require students to use skills and concepts to solve problems. Students must apply their knowledge to new situations and demonstrate their understanding in a more complex manner.

- DOK Level 3: Strategic Thinking
At this level, students engage in reasoning and planning. They must justify their answers and may need to make connections between concepts or apply their understanding in different contexts.

- DOK Level 4: Extended Thinking
This level involves complex reasoning, planning, and problem-solving over an extended period. Students are expected to synthesize information from multiple sources and engage in higher-order thinking.

Examples of DOK Questions for Math

Now, let’s explore various examples of DOK questions for math that correspond to each level of Webb’s framework.

DOK Level 1: Recall and Reproduction

Questions at this level focus on basic recall of facts and straightforward computations. Here are some examples:

1. What is the formula for the area of a rectangle?
2. Calculate the sum of 75 and 28.
3. List the first five prime numbers.
4. Identify the value of x in the equation: x + 5 = 12.
5. What is the perimeter of a triangle with sides measuring 3 cm, 4 cm, and 5 cm?

DOK Level 2: Skills and Concepts

These questions require students to demonstrate their understanding of mathematical concepts and apply skills in new situations. Examples include:

1. Given the equation y = 2x + 3, find the value of y when x = 4.
2. Explain how to solve the following equation: 3x – 7 = 11.
3. If a triangle has a base of 10 cm and a height of 5 cm, what is its area?
4. Compare the fractions 3/4 and 2/3. Which is larger, and how do you know?
5. Solve the following problem: A car travels 60 miles in 1 hour. How far will it travel in 4 hours?

DOK Level 3: Strategic Thinking

At this level, students need to apply their knowledge strategically and justify their reasoning. Here are some examples:

1. Create a word problem that can be solved using the equation x/3 + 4 = 10. Explain your reasoning.
2. Analyze the following data set: {3, 7, 7, 2, 9, 10}. What is the mean, median, and mode? Discuss how these measures of central tendency can provide different insights about the data.

3. Explain how you would approach solving the equation x^2 - 4x + 4 = 0. What methods could you use, and why?
4. Design a survey to collect data on students' favorite mathematics topics. How would you analyze the results?
5. Consider two rectangles: one with a length of 8 cm and a width of 3 cm, and another with a length of 4 cm and a width of 6 cm. Determine which rectangle has a greater area and justify your answer.

DOK Level 4: Extended Thinking

Questions at this level require complex reasoning and synthesis of information. Here are some examples:

1. Develop a project that explores the relationship between geometry and art. Create a portfolio showcasing your work and explain the mathematical concepts involved.
2. Investigate how different factors affect the growth of a plant. Design an experiment, collect data, and analyze the results to draw conclusions about the mathematical relationships you discover.
3. Create a business plan for a new product, including a budget that requires calculations of profit and loss. Present your findings to the class and defend your financial decisions using mathematical reasoning.
4. Examine the impact of a recent economic event on a local business. Use statistical data to support your analysis and propose solutions based on your findings.
5. Research and present on the importance of mathematics in technology. How do mathematical principles underpin the functioning of modern devices? Provide specific examples and calculations to support your claims.

Conclusion

Incorporating **examples of DOK questions for math** into your teaching strategy is crucial for fostering critical thinking and deeper understanding among students. By addressing various cognitive levels, educators can better assess students' abilities and prepare them for real-world applications of mathematics. Utilizing the DOK framework not only enhances teaching practices but also encourages students to engage with mathematical concepts in a meaningful way.

As you create assessments or lesson plans, consider these examples as a guide to developing questions that align with Webb’s DOK levels. This approach will enable you to challenge students appropriately and support their growth in mathematical understanding.

Frequently Asked Questions

What are DOK questions in math?

DOK questions in math refer to Depth of Knowledge questions that assess different levels of understanding and cognitive demand, ranging from recalling facts to higher-order thinking.

Can you give an example of a Level 1 DOK question in math?

An example of a Level 1 DOK question in math is: 'What is the sum of 7 and 5?' This question requires basic recall of addition facts.

What is a Level 2 DOK question in math?

A Level 2 DOK question in math might be: 'Explain how you would solve the equation 3x + 5 = 20.' This requires some reasoning and understanding of algebra.

How can I create a Level 3 DOK question in math?

A Level 3 DOK question in math could be: 'Analyze the relationship between the area and perimeter of different shapes. What conclusions can you draw?' This involves analysis and evaluation.

What is an example of a Level 4 DOK question in math?

An example of a Level 4 DOK question is: 'Design a new garden layout using different geometric shapes. Justify your design based on area and cost.' This requires synthesis and evaluation of information.

How do DOK questions benefit math learning?

DOK questions benefit math learning by encouraging deeper thinking, promoting problem-solving skills, and helping students make connections between concepts.

What type of DOK questions should be used in standardized tests for math?

Standardized tests should include a mix of DOK question levels, ensuring that students are assessed on both their basic skills and higher-order thinking abilities.

Can DOK questions be used in group activities in math?

Yes, DOK questions can be effectively used in group activities to promote collaboration and discussion among students as they tackle complex problems together.

How can teachers assess DOK levels in student responses?

Teachers can assess DOK levels in student responses by analyzing the complexity of the students' explanations, the reasoning they provide, and the depth of their understanding demonstrated.

Are DOK questions relevant for all grade levels in math?

Yes, DOK questions are relevant for all grade levels in math, as they can be tailored to suit the cognitive abilities and learning objectives appropriate for each age group.

Examples Of Dok Questions For Math

EXAMPLE Definition & Meaning - Merriam-Webster
instance, case, illustration, example, sample, specimen mean something that exhibits distinguishing characteristics in its category. instance applies to any individual person, act, or thing that may be offered to illustrate or explain.

453 Synonyms & Antonyms for EXAMPLE | Thesaurus.com
For example, Kelly and Jack later revealed that one plot line involving a dog therapist was set up for the show. Canada, for example, now advises no more than two drinks per week to …

Examples - Free Interactive Resources
Explore Examples.com for comprehensive guides, lessons & interactive resources in subjects like English, Maths, Science and more – perfect for teachers & students!

EXAMPLE | English meaning - Cambridge Dictionary
EXAMPLE definition: 1. something that is typical of the group of things that it is a member of: 2. a way of helping…. Learn more.

Example Definition & Meaning | Britannica Dictionary
If you make an example of a person who has done something wrong, you punish that person as a way of warning other people not to do the same thing. Although it was only his first offense, the judge decided to make an example of him and sentence him to prison.

examples - WordReference.com Dictionary of English
a pattern or model, as of something to be imitated or avoided: to set a good example. for instance: The train I take is always late. For example, this morning it was a half an hour late. See -am-.

EXAMPLE definition in American English - Collins Online Dictionary
An example of something is a particular situation, object, or person that shows that what is being claimed is true. The doctors gave numerous examples of patients being expelled from the hospital.

Dictionary.com | Meanings & Definitions of English Words
2 days ago · The world’s leading online dictionary: English definitions, synonyms, word origins, example sentences, word games, and more. A trusted authority for 25+ years!

Examples - definition of Examples by The Free Dictionary

An example is a typically representative part that demonstrates the character of the whole: "Of the despotism to which unrestrained military power leads we have plenty of examples from Alexander to Mao" (Samuel Eliot Morison).

Example Definition & Meaning | YourDictionary
Example definition: One that is representative of a group as a whole.

EXAMPLE Definition & Meaning - Merriam-Webster
instance, case, illustration, example, sample, specimen mean something that exhibits distinguishing characteristics in its category. instance applies to any individual person, act, or …

453 Synonyms & Antonyms for EXAMPLE | Thesaurus.com
For example, Kelly and Jack later revealed that one plot line involving a dog therapist was set up for the show. Canada, for example, now advises no more than two drinks per week to minimize …

Examples - Free Interactive Resources
Explore Examples.com for comprehensive guides, lessons & interactive resources in subjects like English, Maths, Science and more – perfect for teachers & students!

EXAMPLE | English meaning - Cambridge Dictionary
EXAMPLE definition: 1. something that is typical of the group of things that it is a member of: 2. a way of helping…. Learn more.

Example Definition & Meaning | Britannica Dictionary
If you make an example of a person who has done something wrong, you punish that person as a way of warning other people not to do the same thing. Although it was only his first offense, the …

examples - WordReference.com Dictionary of English
a pattern or model, as of something to be imitated or avoided: to set a good example. for instance: The train I take is always late. For example, this morning it was a half an hour late. See -am-.

EXAMPLE definition in American English - Collins Online Dictionary
An example of something is a particular situation, object, or person that shows that what is being claimed is true. The doctors gave numerous examples of patients being expelled from the …

Dictionary.com | Meanings & Definitions of English Words
2 days ago · The world’s leading online dictionary: English definitions, synonyms, word origins, example sentences, word games, and more. A trusted authority for 25+ years!

Examples - definition of Examples by The Free Dictionary
An example is a typically representative part that demonstrates the character of the whole: "Of the despotism to which unrestrained military power leads we have plenty of examples from …

Example Definition & Meaning | YourDictionary
Example definition: One that is representative of a group as a whole.

Explore our comprehensive guide on examples of DOK questions for math that enhance critical thinking. Discover how to elevate your teaching methods today!

Back to Home