

College Math CLEP Prep Practice Exam (Sample)

Study Guide



Everything you need from our exam experts!

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SAMPLE

Questions

- 1. In a right triangle, what is the side opposite of the hypotenuse?**
 - A. Adjacent**
 - B. Hypotenuse**
 - C. Opposite**
 - D. Interior**
- 2. Which of the following is a real number?**
 - A. 0**
 - B. Imaginary**
 - C. 1**
 - D. Square root of -1**
- 3. What is the square root of 81?**
 - A. 6**
 - B. 7**
 - C. 8**
 - D. 9**
- 4. An inverse variation is described by the equation $y = x^{2/3}$. Which of the following would be true for the variation?**
 - A. As y increases, x decreases**
 - B. As y decreases, x increases**
 - C. As y decreases, x decreases**
 - D. As y increases, x increases**
- 5. Which of the following fraction represents $1/4$?**
 - A. $6/19$**
 - B. $3/5$**
 - C. $4/15$**
 - D. $7/2$**
- 6. What is the mean of the numbers 3, 4, 5, and 7?**
 - A. 5.5**
 - B. 14**
 - C. 17**
 - D. 21**

7. In triangle ABC, what is the measure of angle B?
- A. 20 degrees
 - B. 30 degrees
 - C. 45 degrees
 - D. Cannot be determined
8. What is the slope of the line represented by the equation $y = 8x + 4$?
- A. 8
 - B. -4
 - C. 4
 - D. 0
9. Which of the following is a linear equation?
- A. $3x - 2y = 7$
 - B. $4x - 2 = 2$
 - C. $y^2 + 3x = 4$
 - D. $2y/x = 9$
10. What is the sum of the interior angles of a hexagon?
- A. 360
 - B. 720
 - C. 480
 - D. None of the above

Answers

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1. C
2. C
3. D
4. D
5. D
6. A
7. D
8. A
9. A
10. B

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Explanations

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1. In a right triangle, what is the side opposite of the hypotenuse?

- A. Adjacent**
- B. Hypotenuse**
- C. Opposite**
- D. Interior**

In a right triangle, the hypotenuse is defined as the longest side that is opposite the right angle. The side opposite of the hypotenuse is called the opposite side. So, in terms of geometry, the word "opposite" is used to indicate the side furthest away from the angle being referenced. This is why "opposite" is the correct answer while the other options, such as "adjacent" and "interior," do not accurately describe the side opposite of the hypotenuse. "Adjacent" refers to the side that is next to the angle being referenced, while "interior" does not have a specific meaning in relation to right triangles and does not accurately describe the side in question.

2. Which of the following is a real number?

- A. 0**
- B. Imaginary**
- C. 1**
- D. Square root of -1**

Real numbers are defined as numbers that can be expressed as infinite decimal representation. This includes numbers such as whole numbers, natural numbers, integers, fractions, and decimal numbers. Option A is the only real number listed as it is a whole number, and whole numbers are a subset of real numbers. Option B, Imaginary, is not a real number as it cannot be represented on the number line and does not follow the rules of real numbers. Option D, square root of -1, is known as an imaginary number, and as mentioned before, is not a real number since it cannot be represented on the number line.

3. What is the square root of 81?

- A. 6**
- B. 7**
- C. 8**
- D. 9**

The square root of a number is a number that, when multiplied by itself, gives the original number. So, in this case, the square root of 81 is a number that, when multiplied by itself, equals 81. Out of the given options, only 9 satisfies this condition. A, B, and C are incorrect as their products do not equal 81. Additionally, it is important to note that in mathematics, we typically use the positive square root, so the answer would not be -9. Therefore, D is the correct answer.

4. An inverse variation is described by the equation $y = x^{2/3}$. Which of the following would be true for the variation?

- A. As y increases, x decreases
- B. As y decreases, x increases
- C. As y decreases, x decreases
- D. As y increases, x increases**

An inverse variation is a relationship between two variables where one variable increases while the other decreases at a constant rate. In the given equation, y is inversely proportional to x, which means that as one variable increases, the other decreases. The exponent of $2/3$ indicates that the decrease in y will be greater than the increase in x. Therefore, as y increases, x will also increase but at a slower rate. This makes option D the correct choice. The other options are incorrect because they do not follow the pattern of an inverse variation. Option A suggests that y and x both decrease, while option B suggests that y and x both increase, which goes against the concept of inverse variation. Option C suggests that both y and x decrease, which is not consistent with the given equation.

5. Which of the following fraction represents $1/4$?

- A. $6/19$
- B. $3/5$
- C. $4/15$
- D. $7/2$**

The fraction that accurately represents $1/4$ is indeed one that has equivalent values when simplified or compared with the value of $1/4$. To determine this, consider the process of equalizing fractions. For a fraction to be equivalent to $1/4$, the ratio of its numerator to its denominator must simplify or equal the decimal form of $1/4$, which is 0.25. Each of the other fractions can be evaluated to see their decimal forms. For instance: - The fraction $6/19$ evaluates to approximately 0.316, which is greater than 0.25. - The fraction $3/5$ simplifies to 0.6, which also exceeds 0.25. - The fraction $4/15$ evaluates to about 0.267, still greater than 0.25. When considering $7/2$, or 7 divided by 2, we find this evaluates to 3.5, which is significantly higher than 0.25. To find a fraction that equals $1/4$, you can also cross-multiply to check for equality. 1 times the denominator of another fraction should equal to 4 times its numerator. Because the question asks for a fraction that

6. What is the mean of the numbers 3, 4, 5, and 7?

- A. 5.5**
- B. 14
- C. 17
- D. 21

The mean is calculated by adding all the numbers together and dividing by the total number of numbers. In this case, adding $3 + 4 + 5 + 7$ gives us 19. When we divide 19 by the total number of numbers (4), we get the mean of 4.75. Therefore, options B, C, and D are incorrect because they do not correctly reflect this calculation. B and C are too high and D is too low. Option A is the correct answer because it accurately represents the mean of the given numbers.

7. In triangle ABC, what is the measure of angle B?

- A. 20 degrees
- B. 30 degrees
- C. 45 degrees
- D. Cannot be determined**

Explanation The measure of angle B cannot be determined without additional information about the triangle. We need to know at least one of the other angles to calculate the measurement of angle B. Therefore, options A, B, and C are incorrect because they provide a specific measurement for angle B without considering the other angles in the triangle. Option D is the best answer because without more information, we cannot accurately determine the measure of angle B.

8. What is the slope of the line represented by the equation $y = 8x + 4$?

- A. 8**
- B. -4
- C. 4
- D. 0

The slope of a line represents how steep or flat it is. In this equation, $y = 8x + 4$, the slope is the coefficient of x , which is 8. Therefore, the slope of this line is 8. Option B is incorrect because it represents the y -intercept of the line rather than the slope. The y -intercept is the point where the line crosses the y -axis, which is 4 in this equation. Option C is incorrect because it also represents the y -intercept rather than the slope. Option D is incorrect because the slope cannot be 0 as the line is not horizontal. The only time the slope would be 0 is if the line is perfectly flat or horizontal.

9. Which of the following is a linear equation?

- A. $3x - 2y = 7$**
- B. $4x - 2 = 2$
- C. $y^2 + 3x = 4$
- D. $2y/x = 9$

A linear equation is an algebraic equation in which each term is either a constant or the product of a constant and a single variable. It involves a linear relationship between two variables, where the graph of the equation forms a straight line. In this case, the equation $3x - 2y = 7$ satisfies these conditions, making it the only linear equation option among the four choices. Option B is incorrect because the x and constant terms are on the same side, creating a non-linear equation. Option C is incorrect because of the squared term, which makes it a quadratic equation, not a linear one. Option D is incorrect because of the division of variables, which also creates a non-linear equation. Overall, only option A fits the definition of a linear equation, making it the correct answer.

10. What is the sum of the interior angles of a hexagon?

A. 360

B. 720

C. 480

D. None of the above

A hexagon has six sides, and the sum of the interior angles of any polygon is given by the formula $(n-2) * 180$ degrees, where n is the number of sides. Therefore, the sum of the interior angles of a hexagon is $(6-2) * 180 = 4 * 180 = 720$ degrees. Option A is incorrect because it is the sum of the interior angles of a quadrilateral (4 sides). Option C is incorrect because it is the sum of the exterior angles of a hexagon. Option D is incorrect because, as shown above, the sum of the interior angles of a hexagon is 720 degrees, which is one of the options provided.