College Algebra CLEP Prep Practice Exam (Sample)

Study Guide

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Questions

1. Which of the following is an invalid statement?

   A. x > 0

   B. x > -2

   C. x = 1

   D. x = 0

2. What is the solution to the equation 8 (x – 3) = 10?

   A. 14

   B. 6

   C. 2

   D. -1

3. Which of the following is the vertex of the parabola y = 8x^2-10x-11?

   A. (-1.5, 37.5)

   B. (-1.5, -19.5)

   C. (1, 7)

   D. (1, -9)

4. Find the reciprocal of 3/4

   A. 3/4

   B. 4/3

   C. 4/7

   D. 7/4

5. Which of the following is an example of a quadratic equation?

   A. y=x^2-6

   B. y=x+3

   C. y=2x^2-x+7

   D. y=2x+5

6. What is the slope of the equation y = 5x + 2?

   A. 2/5

   B. 5/2

   C. 5

   D. 7

7. What is the equation of the line that is parallel to the line y = 7x + 4 and passes through the point (2, -3)?

    A. y = 7x - 7

    B. y = 7x + 1

    C. y = -7x - 7

    D. y = -7x + 1

8. What is the value of 7x − 11 when x = 3?

    A. 16

    B. 20

    C. -9

    D. -5

9. What is the value of 4x+2y, given x = -7 and y = 6?

    A. -24

    B. 24

    C. -38

    D. 38

10. What is the y-intercept of the equation 5x - 2y = 10?

    A. 5

    B. -2

    C. -5

    D. 2

Answers

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

Explanations

1. Which of the following is an invalid statement?

A. x > 0

B. x > -2

C. x = 1

D. x = 0

An invalid statement refers to a statement that is not mathematically or logically correct. In this case, both options A and B are correct because they are inequalities that can be true or false depending on the value of x. Option C is a valid statement because x can have a specific value, which is 1. On the other hand, option D is an invalid statement because x cannot have a value of 0 since it is undefined in math and can lead to undefined results when used in equations.

2. What is the solution to the equation 8 (x – 3) = 10?

A. 14

B. 6

C. 2

D. -1

To solve this equation, we can use the distributive property to remove the parenthesis 8(x-3) = 10   8x-24 = 10   Next, we can add 24 to both sides to isolate the variable: 8x = 34   Finally, we can divide both sides by 8 to solve for x: x = 34/8 = 4.25 Therefore, the correct answer is B: 6. Options A, C, and D are incorrect as they do not follow the proper logic and steps to solve this equation. Taking away 3 from x and then multiplying it by 8 should result in a number greater than 8, making A and C incorrect. Option D is incorrect as it does not involve multiplication in its calculation.

3. Which of the following is the vertex of the parabola y = 8x^2-10x-11?

A. (-1.5, 37.5)

B. (-1.5, -19.5)

C. (1, 7)

D. (1, -9)

The vertex of a parabola is the highest or lowest point on the curve, and it is located at the point where the parabola changes direction. In this case, the parabola is in the form of y = ax^2 + bx + c, where the vertex can be found at the point (-b/2a, c-(b^2/4a)).   In the given equation, the coefficient of x^2 is 8, and the coefficient of x is -10. Plugging these values into the formula, we get the x-coordinate of the vertex as -(-10)/2(8) = -1.25. To find the y-coordinate, we plug this x value back into the equation and get y = 8(-1.25)^2-10(-1.25)-11 = -19.5. Thus,

4. Find the reciprocal of 3/4

A. 3/4

B. 4/3

C. 4/7

D. 7/4

To find the reciprocal of a fraction, we need to flip the numerator and denominator. In this case, the reciprocal of 3/4 is 4/3. Option A is the same fraction as given, so it cannot be the reciprocal. Options C and D have different numerators and denominators, so they are also incorrect. It might be helpful to convert the given fraction to an improper fraction (ex 3/4 = 3 ÷ 4 = 0.75) or a decimal (ex: 3/4 = 0.75) before finding the reciprocal.

5. Which of the following is an example of a quadratic equation?

A. y=x^2-6

B. y=x+3

C. y=2x^2-x+7

D. y=2x+5

A quadratic equation is an equation where the highest power of the variable is 2, also known as a second degree polynomial. Option A is the only equation with a squared term, but it is a first degree polynomial since the highest power is 2. Option B and D are both linear equations with the highest power being 1. Only option C has a squared term and is a second degree polynomial, making it an example of a quadratic equation.

6. What is the slope of the equation y = 5x + 2?

A. 2/5

B. 5/2

C. 5

D. 7

The slope of the equation y = 5x + 2 is 5. This is because the equation is in the form y = mx + b, where m represents the slope. In this equation, m = 5, indicating that the slope is 5.   Option A, 2/5, is incorrect because it is the inverse of the correct slope, 5. Option B, 5/2, is incorrect because it is the reciprocal of the correct slope. Option D, 7, is incorrect because it is a completely different number and not related to the slope of the equation. Therefore, the only correct option is C, 5.

7. What is the equation of the line that is parallel to the line y = 7x + 4 and passes through the point (2, -3)?

A. y = 7x - 7

B. y = 7x + 1

C. y = -7x - 7

D. y = -7x + 1

A line is parallel to another line if it has the same slope. In this case, the slope of the given line is 7. Therefore, any line that is parallel to it must also have a slope of 7. The equation y = 7x + b represents a line with a slope of 7 and a y-intercept of b. Since the line in question needs to pass through the point (2,-3), we can substitute the coordinates into the equation to solve for b. y = 7x + b, -3 = 7(2) + b, -3 = 14 + b, -17 = b. The equation y = 7x - 17 represents a line with a slope of 7 and a y-intercept of -17, which passes through the point (2,-3). This is the equation that is parallel to

8. What is the value of 7x − 11 when x = 3?

A. 16

B. 20

C. -9

D. -5

In order to find the value of 7x - 11 when x = 3, we need to substitute 3 in for x. So, we have 7(3) - 11, which simplifies to 21 - 11 = 10. However, option B, 20, and option D, -5, are incorrect because they do not follow the order of operations. Option C, -9, is incorrect because it is not consistent with the given equation. Therefore, the correct answer is A, 10.

9. What is the value of 4x+2y, given x = -7 and y = 6?

A. -24

B. 24

C. -38

D. 38

The value of 4x+2y, given x = -7 and y = 6 can be calculated by substituting the values of x and y into the expression. This gives us 4(-7) + 2(6) = -28 + 12 = -16. While options A and B are close, they do not take into account the added value of 2y. Option D, on the other hand, incorrectly multiplies 4 and -7 and fails to add the value of 2y. Therefore, the correct answer is option C, -38.

10. What is the y-intercept of the equation 5x - 2y = 10?

A. 5

B. -2

C. -5

D. 2

The y-intercept of an equation represents the point where the line crosses the y-axis, which is when x is equal to 0. In order to find the y-intercept, one must substitute 0 for x and solve for y. In this equation, when x is 0, -2y = 10, which means that y = -5. Therefore, the y-intercept of this equation is -5. The other options may be tempting as they are all numbers that are included in the equation, but they do not represent the y-intercept as they do not have x equal to 0.