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Algebra 1 Practice Worksheets

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Part 1: Building a Foundation

What is the coefficient in the expression 5x + 3?

Hint: Identify the number that multiplies the variable.

- ◯ A) 5
- ◯ B) x
- ◯ C) 3
- ◯ D) 8

Which of the following are linear equations?

Hint: Look for equations that can be graphed as straight lines.

- ☐ A) 2x + 3 = 7
- ☐ B) $x^2 + 4x + 4 = 0$
- ☐ C) y = 3x - 5
- ☐ D) 5x - 2y = 10

Explain what a variable is in algebra and provide an example of how it is used in an expression.

Hint: Think about how variables represent unknown values.

List the terms in the expression $4x^2 + 7x - 5$.

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Hint: Identify each part of the expression separated by + or - signs.

1. What are the terms?

What is the standard form of a linear equation?

Hint: Look for the equation format that includes both x and y.

○ A) y = mx + b
○ B) Ax + By = C
○ C) x² + bx + c = 0
○ D) y = ax² + bx + c

Part 2: Understanding and Interpretation

Which of the following expressions is equivalent to 3(x + 4)?

Hint: Distribute the 3 to both terms inside the parentheses.

○ A) 3x + 4
○ B) 3x + 12
○ C) x + 12
○ D) 3x + 4x

Which of the following are properties of exponents?

Hint: Look for rules that apply to multiplying and dividing powers.

☐ A) a^m * a^n = a^(m+n)
☐ B) a^m / a^n = a^(m-n)
☐ C) (a^m)^n = a^(m*n)
☐ D) a^m + a^n = a^(m+n)

Describe the process of solving a linear equation and provide an example.

Hint: Think about isolating the variable on one side of the equation.

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Part 3: Application and Analysis

If f(x) = 2x + 3, what is f(5)?

Hint: Substitute 5 for x in the function.

○ A) 10
○ B) 13
○ C) 8
○ D) 15

Solve the system of equations: 1) x + y = 10 2) 2x - y = 3

Hint: Use substitution or elimination to find the values of x and y.

☐ A) x = 5, y = 5
☐ B) x = 4, y = 6
☐ C) x = 6, y = 4
☐ D) x = 7, y = 3

A rectangle has a length that is 3 times its width. If the perimeter is 48 units, find the dimensions of the rectangle.

Hint: Use the perimeter formula P = 2(length + width).

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Which graph represents a function that is not linear?

Hint: Look for curves or shapes that do not form a straight line.

○ A) A straight line
○ B) A parabola
○ C) A horizontal line
○ D) A vertical line

Which of the following expressions can be factored as (x + 2)(x - 2)?

Hint: Look for the difference of squares pattern.

☐ A) $x^2 - 4$
☐ B) $x^2 + 4$
☐ C) $x^2 - 2x + 4$
☐ D) $x^2 - 2x - 4$

Analyze the quadratic equation $x^2 - 6x + 9 = 0$ and describe its roots.

Hint: Consider the discriminant and the nature of the roots.

Part 4: Evaluation and Creation

Which of the following statements is true about the function $y = 2x^2 - 3x + 1$?

Hint: Consider the shape of the graph and the vertex.

○ A) It has a maximum point.
○ B) It has a minimum point.
○ C) It is a linear function.
○ D) It has no vertex.

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Evaluate the following statements about the polynomial x³ - 4x² + 4x:

Hint: Consider the degree and the number of roots.

☐ A) It can be factored completely.
☐ B) It has a degree of 3.
☐ C) It has three distinct roots.
☐ D) It is a quadratic polynomial.

Create a real-world problem that can be solved using a system of linear equations, and solve it.

Hint: Think about a scenario involving two or more quantities.

Design a quadratic equation that has roots at x = 3 and x = -2. Provide the equation in standard form.

Hint: Use the factored form to create the equation.

1. What is the equation?

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