

Algebra 1 Summer Math Packet
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Directions: Complete all ten problems below in the space provided. You must show all work neatly and in an organized fashion along with the correct answer to receive ten points.

Problem #1 (F&A) 10-3a: Demonstrates conceptual understanding of algebraic expressions by solving problems involving simplifying polynomial expressions. (F&A) 10-4a: Demonstrates conceptual understanding of equality by solving equations.

Solve the equation if possible. $\frac{5}{6}(24 - 36b) = 10(2b + 4)$

Problem #2 (N&O) 10-8a: Applies properties of numbers to solve problems. (F&A) 10-3a: Demonstrates conceptual understanding of algebraic expressions by solving problems involving simplifying polynomial expressions.

Simplify: $2(-4x^3 - 6x^2 + 3x - 1) - (8x^3 + 4x^2 - 2x + 3)$

Problem #3 (F&A) 10-4c: Demonstrates conceptual understanding of equality by solving linear equations.

Write an equation of the line that is perpendicular to the given line

and passes through the given point. $y = \frac{4}{3}x - 6 ; (3,1)$

Problem #4 (F&A) 10-3a: Demonstrates conceptual understanding of algebraic expressions by simplifying polynomial expressions.

Simplify.

$$\frac{18m^3n^4 - 12m^2n^3 + 24n^2}{6m^2n}$$

Problem #5 (F&A) 12-4a: Demonstrates conceptual understanding of equality and inequality by solving systems of linear inequalities and interpreting the solutions algebraically and graphically.

Solve the following compound inequality; then graph the solution.

$$3x + 1 < 4 \text{ or } 2x - 5 > 7$$

Problem #6 (F&A) 10-4d: Demonstrates conceptual understanding of equality by solving problems involving systems of linear equations.

Find the solution by substitution.

$$-3w + z = 4$$

$$-9w + 5z = -1$$

Problem #7 (F&A) 10-4c: Demonstrates conceptual understanding of equality by solving linear equations symbolically and graphically.

Write an equation for the line passing through the point $(-4,5)$ and $(1,2)$ in standard form.

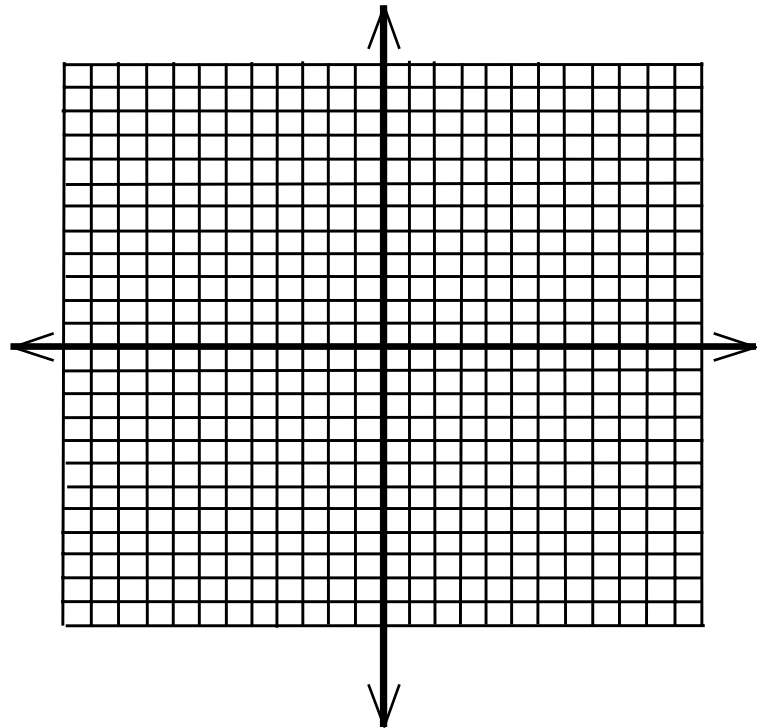
Problem #8 (F&A) 10-4a: Demonstrates conceptual understanding of equality by solving problems involving linear equations. (N&O) 10-8a: Applies properties of numbers to solve problems.

Write an equation for the line going through the point $(4,5)$ with a slope of -3 in slope-intercept form.

Problem #9 (F&A) 12-4a: Demonstrates conceptual understanding of equality by solving systems of linear inequalities and interpreting their solutions algebraically and graphically.

Graph the solution for the following system of linear inequalities.

$$5x - 2y \leq 4$$
$$-4y > -3x - 6$$



Problem #10 (F&A) 10-4d: Demonstrates conceptual understanding of equality by solving problems involving systems of linear equations in a context using equations and graphs.

Solve the linear system by linear combinations.

$$-4x - 2y = -12$$
$$-9x - 3y = 30$$