Algebra 2 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. No scrap.

Problem #1 (F&A) 10-3c: Demonstrates conceptual understanding of algebraic expression by solving problems involving translating problem situations into algebraic expressions.

The sum of 3 times a number and 3 is 75. Find the number.

Problem #2 (G&M) 10-6a: Solves problems involving geometric measurement of two-dimensional figures involving perimeter.

The length of a rectangular garden is 7 feet longer than its width. The perimeter of the garden is 28 feet. Find the length and width of the garden.

Problem #3 **(F&A) 10-4a: Demonstrates conceptual understanding of equality by solving problems involving algebraic reasoning about equality.**

Solve $|2x+3|=7$ **(Hint: there are two possible solutions.)**

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

Solve the following system of linear equations algebraically. Justify your answer using a graph.

$3x-y=-3$

$x+5y=15$

Problem #5 **(F&A) 12-4c: Demonstrates conceptual understanding of equality by solving and interpreting solutions of equations involving radical expressions.**

Solve the following equation.

$\sqrt{3t-5}-3=4$

Problem #6 **(F&A) 12-4c: Demonstrates conceptual understanding of equality by solving and interpreting solutions of equations involving polynomial expressions.**

Find the value of the discriminant of the following quadratic equation. Then describe the number and type of root for the equation.

$3x^2-6x+2=0$

Problem #7 **(F&A) 10-3a: Demonstrates conceptual understanding of algebraic expressions by simplifying expressions involving square roots.**

Simplify.

$\sqrt{8}+\sqrt{15}+\sqrt{21}=$

Problem #8 **(F&A) 10-3a: Demonstrates conceptual understanding of algebraic expressions by simplifying expressions involving integer exponents.**

Simplify and write with positive exponents.

$$\frac{\left(3x^{2}y^{-3}\right)^{2}}{\left(2x^{-3}y^{4}\right)^{-3}}=$$

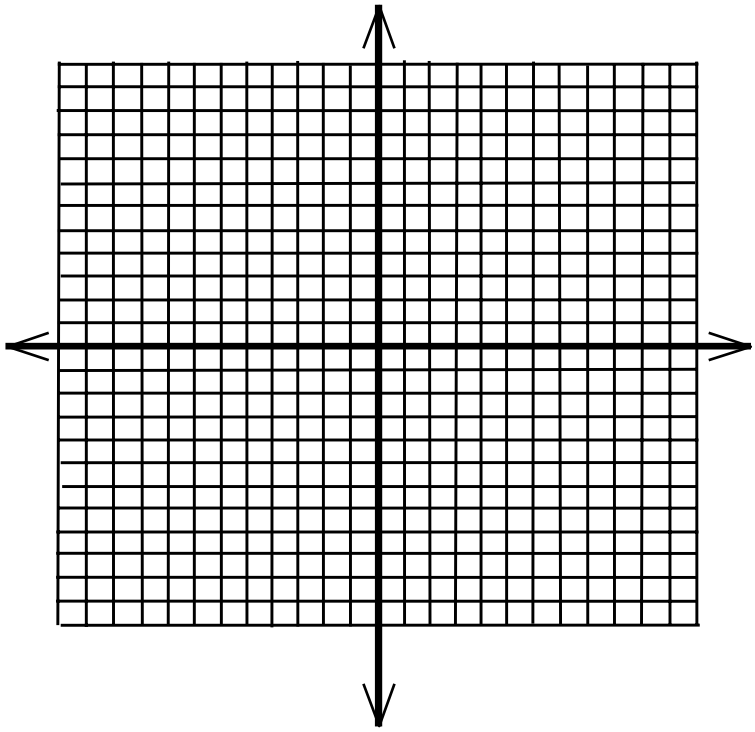
Problem #9 **(F&A) 12-4g: Demonstrates conceptual understanding of equality by solving systems of linear inequalities.**

Graph the following system of inequalities.

$x \geq -10$

$1 \leq y \leq 6$

$3x + 4y \leq -8$



Problem #10 **(G&M) 10-4a: Demonstrates conceptual understanding of equality by solving problems involving algebraic reasoning about equality.**

If the operation $\otimes$ is defined by the equation $a \otimes b = ab - b^2$, what is the value of *n* in the equation $4 \otimes n = 4$?