

YOUR NAME: _____

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Read each problem **very carefully** before starting to solve it. Each problem is worth 10 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Consider the absolute value inequality **in two variables**

$$|2x - 5y| \geq 10.$$

- (a) By reasoning geometrically write an equivalent compound inequality not containing any absolute values.

- (b) Graph the solution set of the absolute value inequality using Part (a).

2. Solve the following system of linear equations using **substitution**:

$$\left\{ \begin{array}{rcl} 3x & - & 2y = -21 \\ -2x & + & y = 13 \end{array} \right\}.$$

3. George has \$1.45 in nickels and dimes. If he had twice as many nickels and three times as many dimes as he currently has, he would have summed \$3.70. The task is to find the number of nickels and the number of dimes that George possesses.

(a) Introduce variable(s) and **precisely** state their meaning.

(b) Write equation(s) accurately reflecting the data.

(c) Solve the equations to answer the question posed.

4. Use the **addition method** to solve the following system of linear equations:

$$\left\{ \begin{array}{rclcrcl} x & + & 2y & - & z & = & -13 \\ 3x & + & y & + & 2z & = & -4 \\ -2x & - & y & + & 3z & = & 13 \end{array} \right\}.$$

5. (a) Perform the operations, simplify and write your answer without negative exponents:

$$\frac{(-3x^2y)(-2xy^{-2})^3}{(2x^{-1}y^{-7})^2} =$$

(b) Perform the operations and simplify:

$$[x^3 + (3 - 2y)][x^3 - (3 - 2y)] =$$