

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. (a) Graph the solution set of the compound inequality:

$$5 - 7x \geq 12 \quad \text{or} \quad 3x - 2 < 7.$$

- (b) Graph the solution set of the compound inequality

$$-1 < 3 - 2x \leq 9.$$

2. In 16 years George will be twice as old as Michelle was when they met 5 years ago. If their ages total 73 years, how old are George and Michelle now? (Set x to be George's current age and write an equation reflecting the data. Then solve for x .)

3. Solve each equation:

(a) $-2(x + 17) = 13 - x$.

(b) $\frac{x-3}{4} - \frac{2x-5}{2} = \frac{x+1}{3} - \frac{1}{6}$.

4. George invested some money at 6% yearly interest and some money at 10% yearly interest. In the second investment he put \$ 1,215 more than he put in the first. If his income from both investments in one year was \$ 301.50, how much did George invest at each rate? (Set x the amount invested at 6% and write an equation reflecting the data. Then, solve for x).

5. Solve the following inequalities, express the solution set in interval notation and graph it.

(a)

$$2 \geq \frac{5 - 3x}{-4}.$$

(b)

$$\frac{1}{2}x - \frac{1}{3} \geq \frac{1}{6} \quad \text{and} \quad \frac{1}{4}x - \frac{3}{5} \leq -\frac{1}{10}.$$