

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. Use the addition method to solve the system

$$\left\{ \begin{array}{l} 2x - y + z = 10 \\ 3x - 2y - 2z = 7 \\ x - 3y - 2z = 10 \end{array} \right\}$$

2. Leo and Nick together weigh 240 lbs. Leo and Mark together weigh 250 lbs. All three friends together weigh 70 lbs less than twice the combined weight of Nick and Mark.
- (a) Introduce variable(s) and state precisely their meaning.
- (b) Write equations reflecting the data and solve the system to find how much each of these three friends weighs.

3. Use the matrix method to solve the system

$$\left\{ \begin{array}{l} -x + 3y + z = 11 \\ x - y - 4z = 7 \\ x + y + 2z = 7 \end{array} \right\}$$

4. Simplify and write your answers without negative exponents:

(a)  $\frac{3xy^3}{(3xy)^{-3}} =$

(b)  $\left(\frac{ab^{-5}}{a^2b^3}\right)^{-3} =$

5. Factor the following polynomials completely:

(a)  $12x^2 + 5x - 2 =$

(b)  $x^2y - 2x^2 - y + 2 =$