

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. Solve the following system using addition (elimination).

$$\left\{ \begin{array}{rcl} 2x + 3y - 2z & = & -11 \\ 3x - 2y + 3z & = & 7 \\ x - 4y + 4z & = & 14 \end{array} \right\}$$

2. Solve the following system using the matrix method:

$$\begin{cases} 2x + 5y + 2z = 15 \\ x + 2y = 5 \\ 3x + z = -2 \end{cases}$$

3. One serving of caned beets contains 1 gram of protein and 6 grams of carbohydrates. One serving of canned red beans contains 6 grams of protein and 20 grams of carbohydrates. Our goal is to find how many servings of each it would take to get exactly 23 grams of protein and 90 grams of carbohydrates.
- (a) Introduce variables and state their **precise meaning**.
- (b) Write a system of equations reflecting the data in the statement of the problem.
- (c) Use the method of your preference to solve the system in Part (b) to answer the question posed in the problem.

4. (a) Simplify and leave answer with only positive exponents:

$$\frac{(-9x^3y^2)(-2xy^{-3})}{-6x^{-6}y^2} =$$

- (b) Evaluate and write your answer in scientific notation:

$$\frac{(6000)(0.00004)}{(30,000)(0.002)} =$$

5. (a) Simplify and leave answer with only positive exponents:

$$\frac{(3x^{-1}y^3)^{-2}}{(3xy^{-1})^3}(9x^{-9}y^5) =$$

- (b) Multiply the polynomials and simplify your answer:

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