

1. Solve the system of equations  $\begin{cases} x - 3y = -5 \\ 4x - 2y = 6 \end{cases}$  in two ways:

a. (4 pts) Substitution



b. (4 pts) Elimination

2. (4 pts) Which of the following systems has no solution, and which has infinitely many solutions?

**Bonus 4 pts:** For the one with infinitely many solutions, state the general solution and a particular solution.

**Bonus 2 pts:** For the one with NO solution, point out the absurdity that leads you to this conclusion.

a.  $\begin{cases} x + 2y + z = -3 \\ y + 2z = -4 \\ 0 = 0 \end{cases}$

b.  $\begin{cases} 2x - 3y + 7z = 11 \\ 2y - 5z = 12 \\ 0 = 4 \end{cases}$

3. (4 pts) **Set It Up:** Cashews are worth \$3.83 per pound. Almonds cost \$2.51 per pound. How many pounds of each should be mixed together to obtain 10 pounds of a mixture worth \$2.84 per pound?  
**SOLVE for 4 Bonus Pts.**

4. (4 pts) Find the unique solution for the system of Linear Equations:

$$x - y - 3z = 7$$

$$2x - y - 4z = 9$$

$$x - 4y - 10z = 26$$