

3. For each situation below, model the linear system that you would use to solve the problem. **DO NOT SOLVE THESE PROBLEMS.** Models should include **clearly defined variables** and the **two equations** that would be used to solve.
- a) A store owner sells peanuts for \$4.80/kg and raisins for \$2.40/kg. He decides to mix raisins and peanuts and sell the mixture as a TV snack for \$3.36/kg. He decides to make up 100 kg of the snack. How many kilograms of peanuts and raisins will he need?
- b) Mike invested \$8000, part at 9% and the remainder at 12%. The total interest earned in these investments was \$810. How much did he invest at each rate?
- c) When 4 times the larger of 2 numbers is added to 3 times the smaller, the result is 68. Seven times the larger number less 5 times the smaller is 37. What are the numbers?

4. Given the following equation, create a linear system that has **infinite solutions**. Clearly explain your reasoning.

$$-2x + 4y = 6$$

5. Create a linear system that has the solution $(-3, 2)$. Run a formal check to verify your equations.

6. The solution to this system of equations is $(5, 2)$. Find the values of m and n .

① $(3 - m)x + (-2 + n)y = 7$

② $x = y + n$