

Secondary Math III
Three-Variable Linear Systems
Assignment 12.4

Name _____
Period _____

Determine if the ordered triple is a solution of the system (show work, checking the point in each equation).

1. $(1, 1, 1)$
$$\begin{cases} 2x - 3y + z = 0 \\ 2x - y + 2z = 3 \\ x + y + z = 3 \end{cases}$$

2. $(1, 0, 2)$
$$\begin{cases} 2x - y + z = 4 \\ 4x + 5y - z = 6 \\ 3x - y - 3z = -3 \end{cases}$$

Solve the system using back substitution. Write answers as ordered triples.

3.
$$\begin{cases} 2x - y + 5z = 16 \\ y + 2z = 2 \\ z = 2 \end{cases}$$

4.
$$\begin{cases} 4x - 3y - 2z = -17 \\ 6y - 5z = 10 \\ z = 4 \end{cases}$$

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

6.
$$\begin{cases} 2x - 2y + z = -2 \\ 2x + 3z = 9 \\ 2z = 10 \end{cases}$$

Solve the system of equations. Write answers as ordered triples.

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

8.
$$\begin{cases} x - 2y = -4 \\ 2y + z = 4 \\ y - 2z = 7 \end{cases}$$

$$9. \begin{cases} 3x + y + z = 14 \\ -x + 2y - 3z = -9 \\ 5x - y + 5z = 30 \end{cases}$$

$$10. \begin{cases} x - y + z = 10 \\ 4x + y - 2z = 15 \\ -3x + 5y - z = -18 \end{cases}$$

$$11. \begin{cases} x + y - z = 4 \\ 3x + 2y + 4z = 17 \\ -x + 5y + z = 8 \end{cases}$$

Questions 13 – 14: **Define** the variables, and **write** equations to represent the situation. Then **solve** the system **using substitution**.

12. At a pizza shop, two small pizzas, a liter of soda, and a salad cost \$14; one small pizza, a liter of soda and three salads cost \$15; and three small pizzas and a liter of soda cost \$15. Write and solve a system of equations to determine the cost of one small pizza, one liter of soda and one salad.
13. A florist must make 5 identical bridesmaid bouquets for a wedding. She has as budget of \$160 and wants 12 flowers for each bouquet. Roses cost \$2.50 each, lilies cost \$4 each, and irises cost \$2 each. She wants twice as many roses as the other two type of flowers combined. Write and solve a system of equations to determine how many of each type of flowers is in each bouquet.