

Solving Systems of Three Equations w/ Substitution Date _____ Period _____

Solve each system by substitution.

1) $x = 4y - 11$
 $-3x + 4z = -7$
 $y = -5x + 2z + 25$

2) $x = -4y + 4z + 4$
 $z = 5x - 25$
 $-2x - 5z = 17$

3) $z = -4x + 4y + 13$
 $x + 2y - 2z = 10$
 $x = 2z + 10$

4) $z = -2x + 5y + 24$
 $x = 3y - 3z + 21$
 $5y - 3z = -24$

5) $-5x - 3y + z = -4$
 $-2x - 2y + 2z = 4$
 $z = x + 5$

6) $-4x + 2z = 14$
 $y = x + z + 12$
 $-2x - 4z = 22$

$$\begin{aligned} 7) \quad & 3x - 3y = -6 \\ & z = -3x - 3y + 9 \\ & -4x + 5y + z = 8 \end{aligned}$$

$$\begin{aligned} 8) \quad & x = -5y + 4z + 1 \\ & x - 2y + 3z = 1 \\ & 2x + 3y - z = 2 \end{aligned}$$

$$\begin{aligned} 9) \quad & -2r - 2s + 2t = -4 \\ & -4r + 2t = -16 \\ & r + s + 6t = -12 \end{aligned}$$

$$\begin{aligned} 10) \quad & -6x + y - 4z = 3 \\ & 5x - 3y = -8 \\ & -x - 5y = -4 \end{aligned}$$

$$\begin{aligned} 11) \quad & -4y + 5z = -19 \\ & 5x - 5y - 6z = 8 \\ & 2x + z = -5 \end{aligned}$$

$$\begin{aligned} 12) \quad & -4r + 2s = 12 \\ & 4r - 4s - 2t = -4 \\ & -4r + 3t = -10 \end{aligned}$$

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Solve each system by substitution.

$$\begin{aligned} 1) \quad & x = 4y - 11 \\ & -3x + 4z = -7 \\ & y = -5x + 2z + 25 \end{aligned}$$

$$(5, 4, 2)$$

$$\begin{aligned} 2) \quad & x = -4y + 4z + 4 \\ & z = 5x - 25 \\ & -2x - 5z = 17 \end{aligned}$$

$$(4, -5, -5)$$

$$\begin{aligned} 3) \quad & z = -4x + 4y + 13 \\ & x + 2y - 2z = 10 \\ & x = 2z + 10 \end{aligned}$$

$$(4, 0, -3)$$

$$\begin{aligned} 4) \quad & z = -2x + 5y + 24 \\ & x = 3y - 3z + 21 \\ & 5y - 3z = -24 \end{aligned}$$

$$(3, -3, 3)$$

$$\begin{aligned} 5) \quad & -5x - 3y + z = -4 \\ & -2x - 2y + 2z = 4 \\ & z = x + 5 \end{aligned}$$

$$(0, 3, 5)$$

$$\begin{aligned} 6) \quad & -4x + 2z = 14 \\ & y = x + z + 12 \\ & -2x - 4z = 22 \end{aligned}$$

$$(-5, 4, -3)$$

$$\begin{aligned} 7) \quad & 3x - 3y = -6 \\ & z = -3x - 3y + 9 \\ & -4x + 5y + z = 8 \end{aligned}$$

$(1, 3, -3)$

$$\begin{aligned} 8) \quad & x = -5y + 4z + 1 \\ & x - 2y + 3z = 1 \\ & 2x + 3y - z = 2 \end{aligned}$$

No unique solution

$$\begin{aligned} 9) \quad & -2r - 2s + 2t = -4 \\ & -4r + 2t = -16 \\ & r + s + 6t = -12 \end{aligned}$$

$(3, -3, -2)$

$$\begin{aligned} 10) \quad & -6x + y - 4z = 3 \\ & 5x - 3y = -8 \\ & -x - 5y = -4 \end{aligned}$$

$(-1, 1, 1)$

$$\begin{aligned} 11) \quad & -4y + 5z = -19 \\ & 5x - 5y - 6z = 8 \\ & 2x + z = -5 \end{aligned}$$

$(-1, 1, -3)$

$$\begin{aligned} 12) \quad & -4r + 2s = 12 \\ & 4r - 4s - 2t = -4 \\ & -4r + 3t = -10 \end{aligned}$$

$(-2, 2, -6)$