

Name : \_\_\_\_\_

## Solving System of Equations with Three Variables

Use the best method to solve each system of equations.

$$\begin{aligned} \text{①} \quad & x + 3y - 3z = 12 \\ & 3x - y + 4z = 0 \\ & -x + 2y - z = 1 \end{aligned}$$

$$\begin{aligned} \text{②} \quad & x - 6y + 4z = -12 \\ & x + y - 4z = 12 \\ & 2x + 2y + 5z = -15 \end{aligned}$$

$$\begin{aligned} \text{③} \quad & -2x - y - 4z = 6 \\ & -4x - 2z = -10 \\ & 5x + y + 6z = -1 \end{aligned}$$

$$\begin{aligned} \text{④} \quad & -2x + 2y + z = 14 \\ & 3x - 2y + z = -5 \\ & -x + y + 2z = 3 \end{aligned}$$

$$\begin{aligned} \text{⑤} \quad & 3x = -12 + 5y - 4z \\ & 6y = 20 + 2x + 8z \\ & 4x = 8z + y + 6 \end{aligned}$$

$$\begin{aligned} \text{⑥} \quad & -2x + 2y + z = 14 \\ & 3x - 2y + z = -5 \\ & -x + y - 2z = -8 \end{aligned}$$

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### Answers

$$\begin{aligned} \text{①} \quad & x + 3y - 3z = 12 \\ & 3x - y + 4z = 0 \\ & -x + 2y - z = 1 \end{aligned}$$

$$x = 3, y = 1, z = -2$$

$$\begin{aligned} \text{②} \quad & x - 6y + 4z = -12 \\ & x + y - 4z = 12 \\ & 2x + 2y + 5z = -15 \end{aligned}$$

$$x = 0, y = 0, z = -3$$

$$\begin{aligned} \text{③} \quad & -2x - y - 4z = 6 \\ & -4x - 2z = -10 \\ & 5x + y + 6z = -1 \end{aligned}$$

$$x = 14\frac{1}{3}, y = 22\frac{2}{3}, z = -2\frac{2}{3}$$

$$\begin{aligned} \text{④} \quad & -2x + 2y + z = 14 \\ & 3x - 2y + z = -5 \\ & -x + y + 2z = 3 \end{aligned}$$

$$x = 3, y = 1, z = -2$$

$$\begin{aligned} \text{⑤} \quad & 3x = -12 + 5y - 4z \\ & 6y = 20 + 2x + 8z \\ & 4x = 8z + y + 6 \end{aligned}$$

$$x = 3, y = 1, z = 1\frac{3}{4}$$

$$\begin{aligned} \text{⑥} \quad & -2x + 2y + z = 14 \\ & 3x - 2y + z = -5 \\ & -x + y - 2z = -8 \end{aligned}$$

$$x = -3, y = 1, z = 6$$