

①

$$7 \cdot \begin{bmatrix} 5 & 10 \\ 7 & 12 \\ 11,3 & 5 \\ 25 & 30 \end{bmatrix} + 2 \cdot \begin{bmatrix} 5 & 10 \\ 7 & 12 \\ 11,3 & 5 \\ 25 & 30 \end{bmatrix} = \begin{bmatrix} \cancel{55} & 90 \\ 63 & 108 \\ 101,7 & 45 \\ 225 & 270 \end{bmatrix}$$

②.1

$$\begin{cases} 3x - 2y + 5z = 7 \\ 7x + 4y - 8z = 3 \\ 5x - 3y - 4z = -12 \end{cases}$$

$$\begin{cases} z = \frac{7 - 3x + 2y}{5} \\ 7x + 4y - 8 \cdot \left(\frac{7 - 3x + 2y}{5} \right) = 3 \\ 5x - 3y - 4 \cdot \left(\frac{7 - 3x + 2y}{5} \right) = -12 \end{cases}$$

$$\begin{cases} z = \frac{7 - 3x + 2y}{5} \\ 35x + 20y - 56 + 24x - 16y = 15 \\ 25x - 15y - 28 + 12x - 8y = -60 \end{cases}$$

$$\begin{cases} z = \frac{7 - 3x + 2y}{5} \\ y = \frac{71 - 59x}{4} \\ 25x - 15 \left(\frac{71 - 59x}{4} \right) - 28 + 12x - 8 \left(\frac{71 - 59x}{4} \right) = -6 \end{cases}$$

$$37x - 23 \left(\frac{71-59x}{4} \right) = -32$$

$$148x - 1633 + 1357x = -128$$

$$1505x = 1633 - 128$$

$$\begin{cases} x = 1 \\ y = 3 \\ z = 2 \end{cases}$$

2.2

$$\begin{cases} x^2 + y \cdot x - 9 = 0 \\ x - \frac{y}{5} = 0 \end{cases}$$

$$\begin{cases} y = 5x \\ x^2 + 5x^2 = 9 \end{cases}$$

$$x^2 = \frac{9}{6}$$

$$\begin{cases} x = \frac{3}{\sqrt{6}} \\ y = \frac{15}{\sqrt{6}} \end{cases}$$

$$\begin{cases} x = -\frac{3}{\sqrt{6}} \\ y = -\frac{15}{\sqrt{6}} \end{cases}$$

3.

$$\begin{cases} x \cdot y = 48 \\ 2 \cdot (x + y) = 28 \end{cases}$$

$$\text{ODS: } \begin{cases} x > 0 \\ y > 0 \end{cases}$$

$$\begin{cases} y = \frac{48}{x} \\ 2x + \frac{96}{x} = 28 \end{cases}$$

$$x^2 + 48 - 28x = 0$$

$$x = \frac{28 \pm \sqrt{(-28)^2 - 4 \cdot 48}}{2} = 14 \pm 2\sqrt{37}$$

$$y = \frac{48}{14 \pm 2\sqrt{37}} = \frac{24}{7 \pm \sqrt{37}}$$

$$\begin{cases} x = 14 + 2\sqrt{37} \\ y = \frac{24}{2 + \sqrt{37}} \end{cases} \quad \begin{cases} x = 14 - 2\sqrt{37} \\ y = \frac{24}{2 - \sqrt{37}} \end{cases}$$

$$\text{ODS: } \begin{cases} x > 0 \\ y > 0 \end{cases} \Rightarrow \begin{cases} x = 14 + 2\sqrt{37} \\ y = \frac{24}{2 + \sqrt{37}} \end{cases}$$