

1 次の方程式を解きなさい。

(1) $2x + 2y = -4x + 7y = 22$

(2) $2x + y = 9x + 4y = 1$

(3) $14x + 6y = -7x - 8y + 21 = 24$

(4) $-2x - 7y = -3y + 18 = 4x + 9$

1 次の方程式を解きなさい。

(1) $2x + 2y = -4x + 7y = 22$

$$\begin{cases} 2x + 2y = 22 & \dots\dots \textcircled{1} \\ -4x + 7y = 22 & \dots\dots \textcircled{2} \end{cases}$$

①と②の連立方程式を解くと、

$$\textcircled{1} \times 2 \quad 4x + 4y = 44$$

$$\begin{array}{r} \textcircled{2} \quad +) -4x + 7y = 22 \\ \hline \quad \quad 11y = 66 \\ \quad \quad \quad y = 6 \end{array}$$

$y = 6$ を①に代入すると、

$$2x + 2 \times 6 = 22$$

$$2x = 10$$

$$x = 5$$

$$\text{答} \begin{cases} x = 5 \\ y = 6 \end{cases}$$

(3) $14x + 6y = -7x - 8y + 21 = 24$

$$\begin{cases} 14x + 6y = 24 & \dots\dots \textcircled{1} \\ -7x - 8y + 21 = 24 & \dots\dots \textcircled{2} \end{cases}$$

②の式を整理すると、

$$-7x - 8y = 3 \quad \dots\dots \textcircled{3}$$

①と③の連立方程式を解くと、

$$\textcircled{1} \quad 14x + 6y = 24$$

$$\begin{array}{r} \textcircled{3} \times 2 \quad +) -14x - 16y = 6 \\ \hline \quad \quad -10y = 30 \\ \quad \quad \quad y = -3 \end{array}$$

$y = -3$ を③に代入すると、

$$-7x - 8 \times (-3) = 3$$

$$-7x = -21$$

$$x = 3$$

$$\text{答} \begin{cases} x = 3 \\ y = -3 \end{cases}$$

(2) $2x + y = 9x + 4y = 1$

$$\begin{cases} 2x + y = 1 & \dots\dots \textcircled{1} \\ 9x + 4y = 1 & \dots\dots \textcircled{2} \end{cases}$$

①と②の連立方程式を解くと、

$$\textcircled{1} \times 4 \quad 8x + 4y = 4$$

$$\begin{array}{r} \textcircled{2} \quad -) 9x + 4y = 1 \\ \hline \quad \quad -x = 3 \\ \quad \quad \quad x = -3 \end{array}$$

$x = -3$ を①に代入すると、

$$2 \times (-3) + y = 1$$

$$y = 7$$

$$\text{答} \begin{cases} x = -3 \\ y = 7 \end{cases}$$

(4) $-2x - 7y = -3y + 18 = 4x + 9$

$$\begin{cases} -2x - 7y = 4x + 9 & \dots\dots \textcircled{1} \\ -3y + 18 = 4x + 9 & \dots\dots \textcircled{2} \end{cases}$$

①と②の式を整理すると、

$$\begin{cases} -6x - 7y = 9 & \dots\dots \textcircled{3} \\ -4x - 3y = -9 & \dots\dots \textcircled{4} \end{cases}$$

③と④の連立方程式を解くと、

$$\textcircled{3} \times 2 \quad -12x - 14y = 18$$

$$\begin{array}{r} \textcircled{4} \times 3 \quad -) -12x - 9y = -27 \\ \hline \quad \quad -5y = 45 \\ \quad \quad \quad y = -9 \end{array}$$

$y = -9$ を④に代入すると、

$$-4x - 3 \times (-9) = -9$$

$$-4x = -36$$

$$x = 9$$

$$\text{答} \begin{cases} x = 9 \\ y = -9 \end{cases}$$