



1. 次の連立方程式を解きなさい。

$$(1) \begin{cases} 2x + 2(x - 3y) = 4 & \textcircled{1} \\ -x - y = 9 & \textcircled{2} \end{cases}$$

①を整理すると

$$2x + 2x - 6y = 4 \quad 4x - 6y = 4 \quad \textcircled{1}'$$

$$\textcircled{1}' + \textcircled{2} \times 4$$

$$4x - 6y = 4$$

$$+ \underline{-4x - 4y = 36}$$

$$-10y = 40$$

$$y = -4 \text{ を}\textcircled{3}\text{に代入}$$

$$-x - (-4) = 9 \quad x = -5$$

$$(2) \begin{cases} 3x + 7y = 20 & \textcircled{1} \\ -3(2x + 2y) + x = -22 & \textcircled{2} \end{cases}$$

②を整理すると

$$-5x - 6y = -22 \quad \textcircled{2}'$$

$$\textcircled{2}' \times 3 + \textcircled{1} \times 5$$

$$-15x - 18y = -66$$

$$+ \underline{15x + 35y = 100}$$

$$17y = 34$$

$$y = 2 \text{ を}\textcircled{1}\text{に代入}$$

$$3x + 7 \times 2 = 20 \quad x = 2$$

$$(3) \begin{cases} -7(x + y) = -y - 40 & \textcircled{1} \\ 4(x + 2y) = 9y - 17 & \textcircled{2} \end{cases}$$

①を整理すると

$$-7x - 6y = -40 \quad \textcircled{1}'$$

②を整理すると

$$4x - y = -17 \quad \textcircled{2}'$$

$$\textcircled{1}' - \textcircled{2}' \times 6$$

$$-7x - 6y = -40$$

$$- \underline{24x - 6y = -102}$$

$$-31x = 62$$

$$x = -2 \text{ を}\textcircled{2}'\text{に代入}$$

$$4 \times (-2) - y = -17 \quad y = 9$$

$$(4) \begin{cases} x + \frac{3}{2}y = 2 & \textcircled{1} \\ x - 3y = -2 & \textcircled{2} \end{cases}$$

$$\textcircled{1} \times 2 + \textcircled{2}$$

$$2x + 3y = 4$$

$$+ \underline{x - 3y = -2}$$

$$3x = 2$$

$$x = \frac{2}{3} \text{ ②に代入して}$$

$$\frac{2}{3} - 3y = -2 \quad y = \frac{8}{9}$$

$$(5) \begin{cases} -2x + y = -2 & \textcircled{1} \\ -2(x + y) = 1 + 2y & \textcircled{2} \end{cases}$$

②を整理して

$$-2x - 4y = 1 \quad \textcircled{2}'$$

$$\textcircled{1} - \textcircled{2}'$$

$$-2x + y = -2$$

$$- \underline{-2x - 4y = 1}$$

$$5y = -3$$

$$y = -\frac{3}{5} \text{ ①に代入して}$$

$$-2x + \left(-\frac{3}{5}\right) = -2 \quad x = \frac{7}{10}$$

$$(6) \begin{cases} \frac{1}{2}x - \frac{1}{6}y = -\frac{1}{12} & \textcircled{1} \\ -2x - y = -3 & \textcircled{2} \end{cases}$$

$$\textcircled{1} \times 12$$

$$6x - 2y = -1 \quad \textcircled{1}'$$

$$\textcircled{1}' + \textcircled{2} \times 3$$

$$6x - 2y = -1$$

$$+ \underline{-6x - 3y = -9}$$

$$-5y = -10$$

$$y = 2 \text{ ②に代入して}$$

$$-2x - 2 = -3 \quad x = \frac{1}{2}$$

$$(7) 4x + 4y = 7x + y = 16$$

$$\begin{cases} 4x + 4y = 16 & \textcircled{1} \\ 7x + y = 16 & \textcircled{2} \end{cases}$$

$$\textcircled{1} - \textcircled{2} \times 4$$

$$4x + 4y = 16$$

$$- \underline{28x + 4y = 64}$$

$$-24x = -48$$

$$x = 2 \text{ ②に代入して}$$

$$7 \times 2 + y = 16 \quad y = 2$$

$$(8) \begin{cases} -x + 4y - 2z = -17 & \textcircled{1} \\ x + y - z = 0 & \textcircled{2} \\ -3x - y + 5z = 6 & \textcircled{3} \end{cases}$$

②をzについて解く  $z = x + y \quad \textcircled{2}'$

$$\textcircled{1}\text{に代入} \quad -x + 4y - 2(x + y) = -17 \quad -3x + 2y = -17 \quad \textcircled{1}''$$

$$\textcircled{3}\text{に代入} \quad -3x - y + 5(x + y) = 6 \quad 2x + 4y = 6 \quad \textcircled{3}'$$

$$\textcircled{1}'' \times 2 + \textcircled{3}' \times 3$$

$$-6x + 4y = -34$$

$$+ \underline{6x + 12y = 18}$$

$$16y = -16$$

$$y = -1 \text{ ③}'\text{に代入} \quad 2x + 4 \times (-1) = 6 \quad x = 5,$$

$$x = 5, y = -1 \text{ を}\textcircled{2}'\text{に代入して} \quad z = 5 + (-1) = 4$$

(1)  $x = -5$

$y = -4$

(2)  $x = 2$

$y = 2$

(3)  $x = -2$

$y = 9$

(4) $x = \frac{1}{2}$ $y = 2$	(5) $x = \frac{3}{2}$ $y = 1$	(6) $x = \frac{1}{2}$ $y = 2$
(7) $x = 2$ $y = 2$	(8) $x = 5$ $y = -1$ $z = 4$	