

連立方程式の練習問題.1

名前

解答

解答

問 次の連立方程式を解け。

$$(1) \begin{cases} x + 3(x + y) = 11 \\ x - y = 7 \end{cases}$$

$x = \frac{11}{4} - \frac{3}{4}y$ を②に代入 $y = -\frac{17}{7}$ を②に代入
 $x + 3(x + y) = 11 \dots ①$ $\frac{11}{4} - \frac{3}{4}y - y = 7$ $x - \left(-\frac{17}{7}\right) = 7$
 $x - y = 7 \dots ②$ $\frac{7}{4} - \frac{7}{4}y = \frac{17}{4}$ $x = \frac{32}{7}$
 $-\frac{4}{4}y = \frac{17}{4}$
 $y = -\frac{17}{7}$
 ①を展開 $x + 3x + 3y = 11$
 $4x + 3y = 11$
 $4x = 11 - 3y$
 $x = \frac{11}{4} - \frac{3}{4}y$

答え $x = \frac{32}{7}, y = -\frac{17}{7}$

$$(2) \begin{cases} \frac{1}{8}x + \frac{1}{4}y = \frac{1}{2} \\ \frac{1}{3}x + \frac{1}{6}y = \frac{1}{12} \end{cases}$$

$x + 2y = 4 \rightarrow x = 4 - 2y$ $y = 2.5$ を②に代入
 $x = 4 - 2y$ を②に代入 $2x + 2.5 = 0.5$
 $2(4 - 2y) + y = 0.5$ $2x = -2$
 $8 - 4y + y = 0.5$ $x = -1$
 $-3y = -7.5$
 $y = 2.5$
 $\frac{1}{8}x + \frac{1}{4}y = \frac{1}{2}$ の両辺に 8 を掛ける
 $x + 2y = 4 \dots ①$
 $\frac{1}{3}x + \frac{1}{6}y = \frac{1}{12}$ の両辺に 6 を掛ける
 $2x + y = 0.5 \dots ②$

答え $x = -1, y = 2.5$

$$(3) \begin{cases} 0.5x + 0.25y = 1.75 \\ 0.4x - 0.1y = 0.5 \end{cases}$$

$y = -5 + 4x$ を①に代入
 $0.5x + 0.25(-5 + 4x) = 1.75$
 $0.5x - 1.25 + x = 1.75$
 $1.5x = 3$
 $x = 2$
 $0.5x + 0.25y = 1.75 \dots ①$
 $0.4x - 0.1y = 0.5 \dots ②$
 ②の両辺を10倍
 $4x - y = 5$
 $-y = 5 - 4x$
 $y = -5 + 4x$
 $x = 2$ を②に代入
 $0.8 - 0.1y = 0.5$
 $-0.1y = -0.3$
 $y = 3$

答え $x = 2, y = 3$



$$(4) \quad \begin{cases} \frac{1}{9}x + \frac{1}{3}y = \frac{1}{6} \\ 0.4x - 0.8y = -0.7 \end{cases}$$

$$\frac{1}{9}x + \frac{1}{3}y = \frac{1}{6} \text{ の両辺に9をかける}$$

$$x + 3y = 1.5$$

$$x = 1.5 - 3y$$

$$x = 1.5 - 3y \text{ を } 0.4x - 0.8y = -0.7 \text{ に代入}$$

$$0.4(1.5 - 3y) - 0.8y = -0.7$$

$$0.6 - 1.2y - 0.8y = -0.7$$

$$-2y = -1.3$$

$$y = 0.65$$

$$y = 0.65 \text{ を } x = 1.5 - 3y \text{ に代入}$$

$$x = 1.5 - 3 \times 0.65$$

$$x = 1.5 - 1.95$$

$$x = -0.45$$

$$\underline{\text{答え } x = -0.45, y = 0.65}$$

