

連立方程式 [いろいろな連立方程式 (2)]

<演習問題>

次の連立方程式を解け。

$$(1) \begin{cases} 0.3x + 0.3y = 0.6 \\ -3x + 8y = 5 \end{cases}$$

$$(4) \begin{cases} \frac{1}{2}x + \frac{1}{3}y = 3 \\ 4x - y = 13 \end{cases}$$

$$(2) \begin{cases} 3x + 4y = 2 \\ 0.5x - 0.3y = 1.3 \end{cases}$$

$$(5) \begin{cases} \frac{1}{3}x - \frac{1}{4}y = 2 \\ 3x + 2y = 1 \end{cases}$$

$$(3) \begin{cases} 2x + 5y = 6 \\ -0.3x + 8y = -0.9 \end{cases}$$

$$(6) \begin{cases} 4x + 5y = 9 \\ \frac{1}{6}x = \frac{1}{3}y + 2 \end{cases}$$

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次の連立方程式を解け。

$$(1) \begin{cases} 0.3x + 0.3y = 0.6 \\ -3x + 8y = 5 \end{cases}$$

$$\begin{cases} 0.3x + 0.3y = 0.6 & (1) \\ -3x + 8y = 5 & (2) \end{cases}$$

(1) × 10

$$3x + 3y = 6 \quad (1)'$$

(1)' + (2)

$$3y + 8y = 6 + 5$$

$$y = 1$$

これを (2) に代入して

$$-3x + 8 \times 1 = 5$$

$$x = 1$$

$$x = 1, y = 1$$

$$(2) \begin{cases} 3x + 4y = 2 \\ 0.5x - 0.3y = 1.3 \end{cases}$$

$$\begin{cases} 3x + 4y = 2 & (1) \\ 0.5x - 0.3y = 1.3 & (2) \end{cases}$$

(2) × 10

$$5x - 3y = 13 \quad (2)'$$

(1) × 3 + (2)' × 4

$$3 \times 3x + 4 \times 5x = 3 \times 2 + 4 \times 13$$

$$x = 2$$

これを (1) に代入して

$$3 \times 2 + 4y = 2$$

$$y = -1$$

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

$$(3) \begin{cases} 2x + 5y = 6 \\ -0.3x + 8y = -0.9 \end{cases}$$

$$\begin{cases} 2x + 5y = 6 & (1) \\ -0.3x + 8y = -0.9 & (2) \end{cases}$$

(2) × 10

$$-3x + 80y = -9 \quad (2)'$$

(1) × 3 + (2)' × 2

$$3 \times 5y + 2 \times 80y = 3 \times 6 + 2 \times (-9)$$

$$y = 0$$

これを (1) に代入して

$$2x + 5 \times 0 = 6$$

$$x = 3$$

$$x = 3, y = 0$$

$$(4) \begin{cases} \frac{1}{2}x + \frac{1}{3}y = 3 \\ 4x - y = 13 \end{cases}$$

$$\begin{cases} \frac{1}{2}x + \frac{1}{3}y = 3 & (1) \\ 4x - y = 13 & (2) \end{cases}$$

(1) × 6

$$3x + 2y = 18 \quad (1)'$$

(1)' + (2) × 2

$$3x + 2 \times 4x = 18 + 2 \times 13$$

$$x = 4$$

これを (2) に代入して

$$4 \times 4 - y = 13$$

$$y = 3$$

$$x = 4, y = 3$$

$$(5) \begin{cases} \frac{1}{3}x - \frac{1}{4}y = 2 \\ 3x + 2y = 1 \end{cases}$$

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

(1) × 12

$$4x - 3y = 24 \quad (1)'$$

(1)' × 2 + (2) × 3

$$2 \times 4x + 3 \times 3x = 2 \times 24 + 3 \times 1$$

$$x = 3$$

これを (2) に代入して

$$3 \times 3 + 2y = 1$$

$$y = -4$$

$$x = 3, y = -4$$

$$(6) \begin{cases} 4x + 5y = 9 \\ \frac{1}{6}x = \frac{1}{3}y + 2 \end{cases}$$

$$\begin{cases} 4x + 5y = 9 & (1) \\ \frac{1}{6}x = \frac{1}{3}y + 2 & (2) \end{cases}$$

(2) × 6

$$x = 2y + 12 \quad (2)'$$

(2)' を (1) に代入して

$$4(2y + 12) + 5y = 9$$

$$y = -3$$

これを (2)' に代入して

$$x = 2 \times (-3) + 12$$

$$x = 6$$

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