連立方程式 いろいろな計算2

NO.1

名前

／5　点

◆次の連立方程式を解きなさい

(1) $\begin{cases} 0.2x + 0.5y = 1.4 \\ 0.6x + 0.2y = -1 \end{cases}$

(2) $\begin{cases} x + y = 100 \\ 0.4x - 0.6y = 10 \end{cases}$

(3) $\begin{cases} 0.8x - 0.3y = 0.9 \\ -x + 3y = 12 \end{cases}$

(4) $\begin{cases} 0.14x + 0.07y = 0.56 \\ 2x - y = 4 \end{cases}$

解答

(1)　両辺を10倍する

$$\begin{cases} 2x + 5y = 14 & \cdots① \\ 6x + 2y = -10 & \cdots② \end{cases}$$

①×3−②で,

$$\begin{array}{rrrrrrr} & 6x & + & 15y & = & 42 & \\ -) & 6x & + & 2y & = & -10 & \\ \hline & & & 13y & = & 52 & \\ & & & y & = & 4 & \end{array}$$

$y = 4$ を①に代入して,

$$2x + 5 \times 4 = 14$$

$$x = -3$$

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

(2)

$$\begin{cases} x + y = 100 & \cdots① \\ 4x - 6y = 100 & \cdots② \end{cases}$$

①×4−②で,

$$\begin{array}{rrrrrrr} & 4x & + & 4y & = & 400 & \\ -) & 4x & - & 6y & = & 100 & \\ \hline & & & 10y & = & 300 & \\ & & & y & = & 30 & \end{array}$$

$y = 30$ を①に代入して,

$$x + 1 \times 30 = 100$$

$$x = 70$$

$$(x, y) = (70, 30)$$

(3)

$$\begin{cases} 8x - 3y = 9 & \cdots① \\ -x + 3y = 12 & \cdots② \end{cases}$$

①+②で,

$$\begin{array}{rrrrrrr} & 8x & - & 3y & = & 9 & \\ +) & -x & + & 3y & = & 12 & \\ \hline & & & 7x & = & 21 & \\ & & & x & = & 3 & \end{array}$$

$x = 3$ を①に代入して,

$$8 \times 3 - 3y = 9$$

$$-3y = -15$$

$x = 5$

$(x, y) = (3, 5)$

(4) $\begin{cases} 14x + 7y = 56 & \cdots① \\ 2x - 1y = 4 & \cdots② \end{cases}$

①　－　②　×　7 で,

$14x + 7y = 56$

$-) \ 14x - 7y = 28$

$14y = 28$

$y = 2$

$y = 2$　を①に代入して,

$14x + 7 \times 2 = 56$

$x = 3$

$(x, y) = (3, 2)$