連立方程式　いろいろな計算３

NO.2

名前	

／4　点

◆次の連立方程式を解きなさい

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

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

(3)
$$\begin{cases} x + y = 90 \\ \frac{x}{15} + \frac{y}{20} = 5 \end{cases}$$

(4)
$$\begin{cases} 0.2x - 1.4y = \underline{\quad 5 \quad} \\ \frac{1}{4}x + \frac{2}{3}y = -1 \end{cases}$$

解答

(1)　分数のある式は両辺に分母の最小公倍数をかけて整理する

$$\begin{cases} x + y = 5 & \cdots① \\ 3x + 2y = 6 & \cdots② \end{cases}$$

①×２　－　②

$$\begin{array}{rrrrrrrl} & 2x & + & 2y & = & 10 & & \cdots③ \\ -) & 3x & + & 2y & = & 6 & & \cdots④ \\ \hline & & & -x & = & 4 & & \end{array}$$

$x = -4$

$x = -4$　を①に代入して，

$-4 + y = 5$

$y = 9$

$(x, y) = (-4, 9)$

(2)

$$\begin{cases} 4x + 9y = 48 & \cdots① \\ x + 3y = 18 & \cdots② \end{cases}$$

①　－　②×3

$$\begin{array}{rrrrrrl} & 4x & + & 9y & = & 48 & \\ -) & 3x & + & 9y & = & 54 & \\ \hline & & & x & = & -6 & \end{array}$$

$x = -6$　を②に代入して，

$-6 + 3y = 18$

$3y = 24$

$y = 8$

$(x, y) = (-6, 8)$

(3)

$$\begin{cases} x + y = 90 & \cdots① \\ 4x + 3y = 300 & \cdots② \end{cases}$$

①×3　－　②

$$\begin{array}{rrrrrrl} & 3x & + & 3y & = & 270 & \\ -) & 4x & + & 3y & = & 300 & \\ \hline & & & -1x & = & -30 & \\ & & & x & = & 30 & \end{array}$$

$x = 30$　を①に代入して

$30 + y = 90$

$y = 60$

$(x, y) = (30, 60)$

(4)　整理すると

$$\begin{cases} x - 7y = 25 & \cdots ① \\ 3x + 8y = -12 & \cdots ② \end{cases}$$

①×3 － ②

$$\begin{array}{rrcrcrcr} & 3x & - & 21y & = & 75 \\ +) & 3x & + & 8y & = & -12 \\ \hline & & & -29y & = & 87 \end{array}$$

$y = -3$

$y = -3$ を①に代入して,

$x - (-21) = 25$

$x = 4$

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