

## 1 次方程式 総復習問題 1

I. 次の方程式を解きなさい。

① (熊本89)

$$\begin{aligned} 3x - 5 &= -8 \\ 3x &= -8 + 5 \\ 3x &= -3 \\ x &= \frac{-3}{3} \\ x &= -1 \end{aligned}$$

答.  $x = -1$ 

④ (佐賀90)

$$\begin{aligned} 7x - 6 &= 3(x - 4) \\ 7x - 6 &= 3x - 12 \\ 7x - 3x &= -12 + 6 \\ 4x &= -6 \\ x &= \frac{-6}{4} \\ x &= -\frac{3}{2} \end{aligned}$$

答.  $x = -\frac{3}{2}$ 

⑦ (熊本90)

$$\begin{aligned} 4x - 11 &= 10 - 3x \\ 4x + 3x &= 10 + 11 \\ 7x &= 21 \\ x &= \frac{21}{7} \\ x &= 3 \end{aligned}$$

答.  $x = 3$ 

⑩ (徳島91)

$$\begin{aligned} 5(x - 3) &= 2(x + 3) \\ 5x - 15 &= 2x + 6 \\ 5x - 2x &= 6 + 15 \\ 3x &= 21 \\ x &= \frac{21}{3} \\ x &= 7 \end{aligned}$$

答.  $x = 7$ 

② (佐賀89)

$$\begin{aligned} x + 3(2x - 1) &= 11 \\ x + 6x - 3 &= 11 \\ x + 6x &= 11 + 3 \\ 7x &= 14 \\ x &= \frac{14}{7} \\ x &= 2 \end{aligned}$$

答.  $x = 2$ 

⑤ (栃木90)

$$\begin{aligned} 3x - 10 &= 5x \\ 3x - 5x &= 10 \\ -2x &= 10 \\ x &= \frac{10}{-2} \\ x &= -5 \end{aligned}$$

答.  $x = -5$ 

⑧ (沖縄91)

$$\begin{aligned} 4x - 21 &= x \\ 4x - x &= 21 \\ 3x &= 21 \\ x &= \frac{21}{3} \\ x &= 7 \end{aligned}$$

答.  $x = 7$ 

⑪ (宮崎92)

$$\begin{aligned} 5x + 3 &= 8x - 6 \\ 5x - 8x &= -6 - 3 \\ -3x &= -9 \\ x &= \frac{-9}{-3} \\ x &= 3 \end{aligned}$$

答.  $x = 3$ 

③ (福岡89)

$$\begin{aligned} 8 - 5(1 - x) &= 13 \\ 8 - 5 + 5x &= 13 \\ 5x &= 13 - 8 + 5 \\ 5x &= 10 \\ x &= \frac{10}{5} \\ x &= 2 \end{aligned}$$

答.  $x = 2$ 

⑥ (宮城90)

$$\begin{aligned} 3x + 1 &= x - 6 \\ 3x - x &= -6 - 1 \\ 2x &= -7 \\ x &= \frac{-7}{2} \\ x &= -\frac{7}{2} \end{aligned}$$

答.  $x = -\frac{7}{2}$ 

⑨ (熊本91)

$$\begin{aligned} 3x + 4 &= -2x + 19 \\ 3x + 2x &= 19 - 4 \\ 5x &= 15 \\ x &= \frac{15}{5} \\ x &= 3 \end{aligned}$$

答.  $x = 3$ 

⑫ (熊本92)

$$\begin{aligned} 3x + 5 &= x - 7 \\ 3x - x &= -7 - 5 \\ 2x &= -12 \\ x &= \frac{-12}{2} \\ x &= -6 \end{aligned}$$

答.  $x = -6$

II. 次の方程式を解きなさい。

① (山梨93)

$$\begin{aligned}4x + 9 &= 8x + 1 \\4x - 8x &= 1 - 9 \\-4x &= -8 \\x &= \frac{-8}{-4} \\x &= 2\end{aligned}$$

答.  $x = 2$

④ (佐賀94)

$$\begin{aligned}x + 3(2x - 1) &= 11 \\x + 6x - 3 &= 11 \\x + 6x &= 11 + 3 \\7x &= 14 \\x &= \frac{14}{7} \\x &= 2\end{aligned}$$

答.  $x = 2$

⑦ (奈良94)

$$\begin{aligned}5(x - 6) &= 3x \\5x - 30 &= 3x \\5x - 3x &= 30 \\2x &= 30 \\x &= \frac{30}{2} \\x &= 15\end{aligned}$$

答.  $x = 15$

⑩ (七尾女子高校86)

$$\begin{aligned}2(x - 3) + 1 &= x + 3 \\2x - 6 + 1 &= x + 3 \\2x - x &= 3 + 6 - 1 \\x &= 8\end{aligned}$$

答.  $x = 8$

② (熊本93)

$$\begin{aligned}x - 9 &= 17 - x \\x + x &= 17 + 9 \\2x &= 26 \\x &= \frac{26}{2} \\x &= 13\end{aligned}$$

答.  $x = 13$

⑤ (沖縄94)

$$\begin{aligned}4x - 21 &= x \\4x - x &= 21 \\3x &= 21 \\x &= \frac{21}{3} \\x &= 7\end{aligned}$$

答.  $x = 7$

⑧ (尾山台高校90)

$$\begin{aligned}6 - 2(x - 1) &= 3x + 13 \\6 - 2x + 2 &= 3x + 13 \\-2x - 3x &= 13 - 6 - 2 \\-5x &= 5 \\x &= \frac{-5}{5} \\x &= -1\end{aligned}$$

答.  $x = -1$

⑪ (七尾女子高校88)

$$\begin{aligned}3x + 2 &= 8 - 6x \\3x + 6x &= 8 - 2 \\9x &= 6 \\x &= \frac{6}{9} \\x &= \frac{2}{3}\end{aligned}$$

答.  $x = \frac{2}{3}$

③ (宮崎93)

$$\begin{aligned}5(x + 1) &= x - 3 \\5x + 5 &= x - 3 \\5x - x &= -3 - 5 \\4x &= -8 \\x &= \frac{-8}{4} \\x &= -2\end{aligned}$$

答.  $x = -2$

⑥ (千葉94)

$$\begin{aligned}5x + 3 &= 2x - 7 \\5x - 2x &= -7 - 3 \\3x &= -10 \\x &= \frac{-10}{3} \\x &= -\frac{10}{3}\end{aligned}$$

答.  $x = -\frac{10}{3}$

⑨ (七尾女子高校85)

$$\begin{aligned}-(2x - 3) &= 5 \\-2x + 3 &= 5 \\-2x &= 5 - 3 \\-2x &= 2 \\x &= \frac{2}{-2} \\x &= -1\end{aligned}$$

答.  $x = -1$

⑫ (鵬学園高校91)

$$\begin{aligned}5x + 3 &= -2(3 - x) \\5x + 3 &= -6 + 2x \\3x - 2x &= -6 - 3 \\x &= -9\end{aligned}$$

答.  $x = -9$

Ⅲ. 次の方程式を解きなさい。

① (鵬学園高校92)

$$5x - 9 = -20 - 6x$$

$$5x + 6x = -20 + 9$$

$$11x = -11$$

$$x = \frac{-11}{11}$$

$$x = -1$$

答.  $x = -1$

② (北陸学院高校2016)

$$-2x + 10 = 3x - 5$$

$$-2x - 3x = -5 - 10$$

$$-5x = -15$$

$$x = \frac{-15}{-5}$$

$$x = 3$$

答.  $x = 3$

③ (北陸学院高校2015)

$$3 - x = 3x - 5$$

$$-x - 3x = -5 - 3$$

$$-4x = -8$$

$$x = \frac{-8}{-4}$$

$$x = 2$$

答.  $x = 2$

④ (金沢学院高校2015)

$$2(x - 1) - 3(x - 3) = 10$$

$$2x - 2 - 3x + 9 = 10$$

$$2x - 3x = 10 + 2 - 9$$

$$-x = 3$$

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

$$x = -3$$

答.  $x = -3$

⑤ (千葉2016)

$$x + 3.5 = 0.5(3x - 1)$$

$$x + 3.5 = 1.5x - 0.5$$

両辺に10をかけて

$$10x + 35 = 15x - 5$$

$$10x - 15x = -5 - 35$$

$$-5x = -40$$

$$x = \frac{-40}{-5}$$

$$x = 8$$

答.  $x = 8$

⑥ (福岡2016)

$$3x - 24 = 2(4x + 3)$$

$$3x - 24 = 8x + 6$$

$$3x - 8x = 6 + 24$$

$$-5x = 30$$

$$x = \frac{30}{-5}$$

$$x = -6$$

答.  $x = -6$

⑦ (秋田2016)

$$\frac{4}{5}x + 3 = \frac{1}{2}x$$

両辺に5と2の最小公倍数の10をかけて

$$\frac{4}{5}x \times 10 + 3 \times 10 = \frac{1}{2}x \times 10$$

$$8x + 30 = 5x$$

$$8x - 5x = -30$$

$$3x = -30$$

$$x = \frac{-30}{3}$$

$$x = -10$$

答.  $x = -10$

⑧ (星稜高校86)

$$\frac{2x + 5}{3} - \frac{4x - 3}{5} = 2$$

両辺に3と5の最小公倍数の15をかけて

$$\frac{2x + 5}{3} \times 15 - \frac{4x - 3}{5} \times 15 = 2 \times 15$$

$$5(2x + 5) - 3(4x - 3) = 30$$

$$10x + 25 - 12x + 9 = 30$$

$$10x - 12x = 30 - 25 - 9$$

$$-2x = -4$$

$$x = \frac{-4}{-2}$$

$$x = 2$$

答.  $x = 2$

⑨ (北陸学院高校82)

$$\frac{x + 3}{2} - \frac{2x - 5}{3} = 0$$

両辺に2と3の最小公倍数6をかけて

$$\frac{x + 3}{2} \times 6 - \frac{2x - 5}{3} \times 6 = 0 \times 6$$

$$3(x + 3) - 2(2x - 5) = 0$$

$$3x + 9 - 4x + 10 = 0$$

$$3x - 4x = 0 - 9 - 10$$

$$-x = -19$$

$$x = \frac{-19}{-1}$$

$$x = 19$$

答.  $x = 19$

⑩ (京都89)

$$\frac{1}{6}x - 1 = \frac{5}{2} + \frac{2}{3}x$$

両辺に6, 2, 3の最小公倍数6をかけて

$$\frac{1}{6}x \times 6 - 1 \times 6$$

$$= \frac{5}{2} \times 6 + \frac{2}{3}x \times 6$$

$$x - 6 = 15 + 4x$$

$$x - 4x = 15 + 6$$

$$-3x = 21$$

$$x = \frac{21}{-3}$$

$$x = -7$$

答.  $x = -7$

IV. 次の方程式を解きなさい。

① (嘉悦女子高校89)

$$\frac{x}{4} + \frac{3x-1}{5} = 2 - \frac{x}{4}$$

両辺に4と5の最小公倍数20をかけて

$$\begin{aligned} \frac{x}{4} \times 20 + \frac{3x-1}{5} \times 20 & \\ = 2 \times 20 - \frac{x}{4} \times 20 & \\ 5x + 4(3x-1) = 40 - 5x & \\ 5x + 12x - 4 = 40 - 5x & \\ 5x + 12x + 5x = 40 + 4 & \\ 22x = 44 & \\ x = \frac{44}{22} & \\ x = 2 & \end{aligned}$$

答.  $x = 2$

② (大阪91)

$$x - \frac{x-2}{4} = 5$$

両辺に4をかけて

$$\begin{aligned} x \times 4 - \frac{x-2}{4} \times 4 = 5 \times 4 & \\ 4x - (x-2) = 20 & \\ 4x - x + 2 = 20 & \\ 4x - x = 20 - 2 & \\ 3x = 18 & \\ x = \frac{18}{3} & \\ x = 6 & \end{aligned}$$

答.  $x = 6$

③ (島根91)

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

両辺に2と3の最小公倍数6をかけて

$$\begin{aligned} \frac{x+1}{2} \times 6 = \frac{2x-1}{3} \times 6 & \\ 3(x+1) = 2(2x-1) & \\ 3x+3 = 4x-2 & \\ 3x-4x = -2-3 & \\ -x = -5 & \\ x = \frac{-5}{-1} & \\ x = 5 & \end{aligned}$$

答.  $x = 5$

④ (金沢高校85)

$$\frac{1}{6}(x-1) = 2 - \frac{x-1}{3}$$

$$\frac{1}{6}x - \frac{1}{6} = 2 - \frac{x-1}{3}$$

両辺に6と3の最小公倍数をかけて

$$\begin{aligned} \frac{1}{6}x \times 6 - \frac{1}{6} \times 6 & \\ = 2 \times 6 - \frac{x-1}{3} \times 6 & \\ x - 1 = 12 - 2(x-1) & \\ x - 1 = 12 - 2x + 2 & \\ x + 2x = 12 + 2 + 1 & \\ 3x = 15 & \\ x = \frac{15}{3} & \\ x = 5 & \end{aligned}$$

答.  $x = 5$

⑤ (北陸学院高校85)

$$\frac{x-4}{3} + 1 = \frac{3x+1}{2}$$

両辺に3と2の最小公倍数6をかけて

$$\begin{aligned} \frac{x-4}{3} \times 6 + 1 \times 6 = \frac{3x+1}{2} \times 6 & \\ 2(x-4) + 6 = 3(3x+1) & \\ 2x-8 + 6 = 9x+3 & \\ 2x-9x = 3+8-6 & \\ -7x = 5 & \\ x = \frac{-7}{5} & \\ x = -\frac{7}{5} & \end{aligned}$$

答.  $x = -\frac{7}{5}$

⑥ (金沢高校91)

$$\frac{4}{3}(x-3) = 4 - \frac{1-x}{2}$$

$$\frac{4}{3}x - 4 = 4 - \frac{1-x}{2}$$

両辺に3と2の最小公倍数をかけて

$$\begin{aligned} \frac{4}{3}x \times 6 - 4 \times 6 & \\ = 4 \times 6 - \frac{1-x}{2} \times 6 & \\ 8x - 24 = 24 - 3(1-x) & \\ 8x - 24 = 24 - 3 + 3x & \\ 8x - 3x = 24 - 3 + 24 & \\ 5x = 45 & \\ x = \frac{45}{5} & \\ x = 9 & \end{aligned}$$

答.  $x = 9$

⑦ (北陸学院高校91)

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

両辺に2と3の最小公倍数6をかけて

$$\begin{aligned} \frac{x-2}{3} \times 6 - \frac{x-3}{2} \times 6 = 1 \times 6 & \\ 2(x-2) - 3(x-3) = 6 & \\ 2x-4 - 3x+9 = 6 & \\ 2x-3x = 6+4-9 & \\ -x = 1 & \\ x = \frac{1}{-1} & \\ x = -1 & \end{aligned}$$

答.  $x = -1$

⑧ (金沢高校2016)

$$\frac{x-3}{5} - \frac{2x-1}{3} = 3$$

両辺に5と3の最小公倍数15をかけて

$$\begin{aligned} \frac{x-3}{5} \times 15 - \frac{2x-1}{3} \times 15 = 3 \times 15 & \\ 3(x-3) - 5(2x-1) = 45 & \\ 3x-9 - 10x+5 = 45 & \\ 3x-10x = 45+9-5 & \\ -7x = 49 & \\ x = \frac{49}{-7} & \\ x = -7 & \end{aligned}$$

答.  $x = -7$