

入試対策プリント（計算等基本問題） 11日目 解答と解説

解答 (1) 7 (2) -13 (3) $\frac{3}{2}x + 9y$ (4) $x = -12$ (5) $4\sqrt{2}$ (6) $2(x+4)(x-4)$

$$\begin{aligned}(1) \quad & -2+9 \\ & =9-2=7\end{aligned}$$

$$\begin{aligned}(2) \quad & -5^2+18\div\frac{3}{2} \\ & =-25+18\times\frac{2}{3} \\ & =-25+12=-13\end{aligned}$$

$$\begin{aligned}(3) \quad & 2(x+4y)-3\left(\frac{1}{2}x-\frac{1}{3}y\right) \\ & =3x+8y-\frac{3}{2}x+y \\ & =\frac{6}{2}x-\frac{3}{2}x+8y+y \\ & =\frac{3}{2}x+9y\end{aligned}$$

$$\begin{aligned}(4) \quad & x-7=\frac{4x-9}{3} \\ & 3x-21=4x-9 \\ & 3x-4x=-9+21 \\ & -x=12 \\ & x=-12\end{aligned}$$

$$\begin{aligned}(5) \quad & \sqrt{50}+6\sqrt{2}-\frac{14}{\sqrt{2}} \\ & =5\sqrt{2}+6\sqrt{2}-7\sqrt{2}=4\sqrt{2}\end{aligned}$$

$$\begin{aligned}(6) \quad & 2x^2-32 \\ & =2(x^2-16) \\ & =2(x+4)(x-4)\end{aligned}$$

入試対策プリント（計算等基本問題） 12日目 解答と解説

解答 (1) -7 (2) $8a + b$ (3) $-4 + \sqrt{6}$ (4) $x = 9$ (5) $x = 3, y = 5$ (6) $x = \frac{-9 \pm \sqrt{21}}{6}$

$$\begin{aligned} (1) \quad & 9 - 8 \div \frac{1}{2} \\ & = 9 - 16 = -7 \end{aligned}$$

$$\begin{aligned} (2) \quad & 3(5a - b) - (7a - 4b) \\ & = 15a - 3b - 7a + 4b = 8a + b \end{aligned}$$

$$\begin{aligned} (3) \quad & (2 - \sqrt{6})(1 + \sqrt{6}) \\ & = 2 + 2\sqrt{6} - \sqrt{6} - (\sqrt{6})^2 \\ & = 2 + \sqrt{6} - 6 = -4 + \sqrt{6} \end{aligned}$$

$$\begin{aligned} (4) \quad & 9x + 4 = 5(x + 8) \\ & 9x + 4 = 5x + 40 \\ & 9x - 5x = 40 - 4 \\ & 4x = 36 \\ & x = 9 \end{aligned}$$

$$\begin{aligned} (5) \quad & \begin{cases} 7x - 3y = 6 \\ x + y = 8 \end{cases} \\ & \begin{array}{r} 7x - 3y = 6 \\ + \quad 3x + 3y = 24 \\ \hline 10x = 30 \\ x = 3 \end{array} \end{aligned}$$

これを $x + y = 8$ に代入して解くと $y = 5$

$$(6) \quad 3x^2 + 9x + 5 = 0$$

解の公式に代入する。

$$x = \frac{-9 \pm \sqrt{9^2 - 4 \times 3 \times 5}}{2 \times 3}$$

$$x = \frac{-9 \pm \sqrt{21}}{6}$$

入試対策プリント（計算等基本問題） 13日目 解答と解説

解答 (1) 11 (2) $-13ab$ (3) $9\sqrt{7}$ (4) $\frac{9x+2y}{12}$ (5) $2-3\sqrt{2}$

$$\begin{aligned}(1) \quad & 2 - (-9) \\ &= 2 + 9 \\ &= 11\end{aligned}$$

$$\begin{aligned}(2) \quad & 52a^2b \div (-4a) \\ &= -\frac{52a^2b}{4a} \\ &= -13ab\end{aligned}$$

$$\begin{aligned}(3) \quad & \sqrt{28} + \frac{49}{\sqrt{7}} \\ &= 2\sqrt{7} + 7\sqrt{7} \\ &= 9\sqrt{7}\end{aligned}$$

$$\begin{aligned}(4) \quad & \frac{3x-y}{3} - \frac{x-2y}{4} \\ &= \frac{3x-y}{3} + \frac{-x+2y}{4} \\ &= \frac{4(3x-y) + 3(-x+2y)}{12} \\ &= \frac{12x-4y-3x+6y}{12} \\ &= \frac{9x+2y}{12}\end{aligned}$$

$$\begin{aligned}(5) \quad & (\sqrt{2}+1)^2 - 5(\sqrt{2}+1) + 4 \\ & M = \sqrt{2}+1 \text{ とおく} \\ & M^2 - 5M + 4 = (M-1)(M-4) \\ & \quad = (\sqrt{2}+1-1)(\sqrt{2}+1-4) \\ & \quad = \sqrt{2}(\sqrt{2}-3) \\ & \quad = 2-3\sqrt{2}\end{aligned}$$

入試対策プリント（計算等基本問題） 14日目 解答と解説

解答 (1) 5 (2) $22a - b$ (3) $3a^2$ (4) $x=1, y=-2$ (5) $\sqrt{2}$

$$\begin{aligned}(1) \quad & 7 \times 2 - 9 \\ & = 14 - 9 \\ & = 5\end{aligned}$$

$$\begin{aligned}(2) \quad & 3(5a + b) + (7a - 4b) \\ & = 15a + 3b + 7a - 4b \\ & = 22a - b\end{aligned}$$

$$\begin{aligned}(3) \quad & 6a^2b \times ab \div 2b^2 \\ & = \frac{6a^2b \times ab}{2b^2} \\ & = 3a^3\end{aligned}$$

$$\begin{aligned}(4) \quad & \begin{cases} x - 4y = 9 \\ 2x - y = 4 \end{cases} \\ & \quad 2x - 8y = 18 \\ & - \quad 2x - y = 4 \\ & \hline & \quad -7y = 14 \\ & \quad y = -2 \\ & \quad x + 8 = 9 \\ & \quad x = 1\end{aligned}$$

$$\begin{aligned}(5) \quad & \sqrt{24} \div \sqrt{3} - \sqrt{2} \\ & = \sqrt{8} - \sqrt{2} \\ & = 2\sqrt{2} - \sqrt{2} \\ & = \sqrt{2}\end{aligned}$$

入試対策プリント（計算等基本問題） 15日目 解答と解説

解答 (1) -1 (2) $-\frac{6y^2}{x}$ (3) $2\sqrt{5}$ (4) $4+\sqrt{6}$ (5) $x=-2, y=11$

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

$$\begin{aligned}(2) \quad & 3xy^2\div(-2x^2y)\times 4y \\ & =-\frac{3xy^2\times 4y}{2x^2y} \\ & =-\frac{6y^2}{x}\end{aligned}$$

$$\begin{aligned}(3) \quad & \sqrt{45}+\sqrt{5}-\sqrt{20} \\ & =3\sqrt{5}+\sqrt{5}-2\sqrt{5} \\ & =2\sqrt{5}\end{aligned}$$

$$(4) \quad a(a+2)-(a+2)=(a+2)(a-1)\cdots\textcircled{1}$$

①に, $a=\sqrt{6}$ を代入する。

$$\begin{aligned}(a+2)(a-1) & =(\sqrt{6}+2)(\sqrt{6}-1) \\ & =(\sqrt{6})^2-\sqrt{6}+2\sqrt{6}-2 \\ & =6+\sqrt{6}-2=4+\sqrt{6}\end{aligned}$$

$$(5) \quad \begin{cases} 3x+2y=7 \\ 2x+y=6 \end{cases}$$

$$\begin{cases} 3x+2y=14\cdots\textcircled{1} \\ 4x+2y=12\cdots\textcircled{2} \end{cases}$$

$$\begin{cases} 3x+2y=14\cdots\textcircled{1} \\ 4x+2y=12\cdots\textcircled{2} \end{cases}$$

$$\textcircled{1}-\textcircled{2} \text{より} \quad -x=2 \quad \text{よって, } x=-2\cdots\textcircled{3}$$

③を $2x+y=7$ に代入する。

$$2\times(-2)+y=7$$

$$-4+y=7$$

$$y=11$$

入試対策プリント（計算等基本問題） 16日目 解答と解説

解答 (1) -9 (2) -25 (3) $\frac{15}{2}b$ (4) $\frac{-5x+12y}{12}$ (5) $-\sqrt{5}$

$$\begin{aligned}(1) \quad & -3-6 \\ & =-9\end{aligned}$$

$$\begin{aligned}(2) \quad & 7+(-2^3)\times 4 \\ & =7+(-8)\times 4 \\ & =7-32 \\ & =-25\end{aligned}$$

$$\begin{aligned}(3) \quad & (-3ab)^2\div\frac{6}{5}a^2b \\ & =9a^2b^2\times\frac{5}{6a^2b} \\ & =\frac{9a^2b^2\times 5}{6a^2b} \\ & =\frac{15b}{2}\end{aligned}$$

$$\begin{aligned}(4) \quad & \frac{x+3y}{4}-\frac{2x-y}{3} \\ & =\frac{3x+9y}{12}+\frac{-8x+3y}{12} \\ & =\frac{-5x+12y}{12}\end{aligned}$$

$$\begin{aligned}(5) \quad & \sqrt{60}\times\frac{1}{\sqrt{3}}-\sqrt{45} \\ & =\sqrt{20}-3\sqrt{5} \\ & =2\sqrt{5}-3\sqrt{5} \\ & =-\sqrt{5}\end{aligned}$$

入試対策プリント（計算等基本問題） 17日目 解答と解説

解答 (1) -15 (2) 0 (3) $4b^2$ (4) $(a-6)(a+1)$ (5) $x = \frac{-3 \pm \sqrt{17}}{4}$

$$\begin{aligned}(1) \quad & 3 - 2 \times 3^2 \\ &= 3 - 2 \times 9 \\ &= 3 - 18 \\ &= -15\end{aligned}$$

$$\begin{aligned}(2) \quad & \sqrt{12} - \frac{6}{\sqrt{3}} \\ &= 2\sqrt{3} - 2\sqrt{3} \\ &= 0\end{aligned}$$

$$\begin{aligned}(3) \quad & 6ab \div 3a \times 2b \\ &= \frac{6ab \times 2b}{3a} \\ &= 4b^2\end{aligned}$$

$$\begin{aligned}(4) \quad & a^2 - 5a - 6 \\ & \text{積が}-6, \text{和が}-5 \text{ になる自然数の組を探せばよい。} \\ & a^2 - 5a - 6 \\ &= (a-6)(a+1)\end{aligned}$$

$$\begin{aligned}(5) \quad & (2x+1)(x+2)=2x+3 \text{ を } ax^2+bx+c=0 \text{ の形にしなければいけないので,} \\ & 2x^2+4x+x+2=2x+3 \\ & 2x^2+3x-1=0 \\ & \text{解の公式に代入して求める。} \\ & x = \frac{-3 \pm \sqrt{3^2 - 4 \times 2 \times (-1)}}{2 \times 2} \\ & x = \frac{-3 \pm \sqrt{17}}{4}\end{aligned}$$

入試対策プリント（計算等基本問題） 18日目 解答と解説

解答 (1) 14 (2) $-\frac{3}{5}$ (3) 16 (4) $10\sqrt{6}$ (5) $-3x$ (6) $x+2y$

$$\begin{aligned}(1) \quad & 10 - (-4) \\ & = 10 + 4 \\ & = 14\end{aligned}$$

$$\begin{aligned}(2) \quad & \frac{7}{15} \times (-3) + \frac{4}{5} \\ & = -\frac{7}{5} + \frac{4}{5} \\ & = -\frac{3}{5}\end{aligned}$$

$$\begin{aligned}(3) \quad & (-3)^2 + 7 \\ & = 9 + 7 \\ & = 16\end{aligned}$$

$$\begin{aligned}(4) \quad & \sqrt{24} + 8\sqrt{6} \\ & = 2\sqrt{6} + 8\sqrt{6} \\ & = 10\sqrt{6}\end{aligned}$$

$$\begin{aligned}(5) \quad & 27xy \times x^2 \div (-9x^2y) \\ & = -\frac{27xy \times x^2}{9x^2y} \\ & = -3x\end{aligned}$$

$$\begin{aligned}(6) \quad & 3(x+6y) - 2(x+8y) \\ & = 3x + 18y - 2x - 16y \\ & = x + 2y\end{aligned}$$

入試対策プリント（計算等基本問題） 19日目 解答と解説

解答 (1) 8 (2) -16 (3) $x = -2$ (4) $2\sqrt{3}$ (5) ウ, エ

$$\begin{aligned}(1) \quad & 3 - (-5) \\ &= 3 + 5 \\ &= 8\end{aligned}$$

$$\begin{aligned}(2) \quad & -4^2 \\ &= -(4 \times 4) \\ &= -16\end{aligned}$$

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

$$\begin{aligned}(4) \quad & \sqrt{75} - \frac{9}{\sqrt{3}} \\ &= 5\sqrt{3} - 3\sqrt{3} \\ &= 2\sqrt{3}\end{aligned}$$

- (5) ア $n + 1 \Rightarrow n = 1$ を代入すると 2 になるので, 間違い
イ $2n \Rightarrow n$ にどんな数を代入しても偶数になるので, 間違い
ウ $2n + 1 \Rightarrow n$ にどんな数を代入しても奇数になる。
エ $2n + 3 \Rightarrow n$ にどんな数を代入しても奇数になる。
オ $3n \Rightarrow n = 2$ を代入すると 6 になるので, 間違い

入試対策プリント（計算等基本問題） 20日目 解答と解説

解答 (1) -19 (2) $5a - 2b$ (3) $\frac{5x - 3y}{14}$ (4) $9\sqrt{7}$ (5) 23 (6) $x = -3, 7$

$$\begin{aligned}(1) \quad & 5 + (-3) \times 8 \\ &= 5 - 24 \\ &= -19\end{aligned}$$

$$\begin{aligned}(2) \quad & (45a^2 - 18ab) \div 9a \\ &= \frac{45a^2}{9a} - \frac{18ab}{9a} \\ &= 5a - 2b\end{aligned}$$

$$\begin{aligned}(3) \quad & \frac{x-y}{2} - \frac{x+3y}{7} \\ &= \frac{7(x-y)}{14} + \frac{-2(x+3y)}{14} \\ &= \frac{7x-7y-2x-6y}{14} \\ &= \frac{5x-13y}{14}\end{aligned}$$

$$\begin{aligned}(4) \quad & \frac{42}{\sqrt{7}} + \sqrt{63} \\ &= 6\sqrt{7} + 3\sqrt{7} \\ &= 9\sqrt{7}\end{aligned}$$

$$\begin{aligned}(5) \quad & (3a+4)^2 - 9a(a+2) = 9a^2 + 24a + 16 - 9a^2 - 18a \\ &= 6a + 16 \\ &= 6 \times \frac{7}{6} + 16 = 23\end{aligned}$$

$$\begin{aligned}(6) \quad & x^2 + x = 21 + 5x \\ & x^2 - 4x - 21 = 0 \\ & (x-7)(x+3) = 0 \\ & x = -3, 7\end{aligned}$$