

1 [解答] (1) 660 (2) 15 (3) $\frac{5x+9y}{8}$ (4) $2a+1$ (5) $9x-49$ (6) $6-\sqrt{5}$

$$\begin{aligned} (1) \quad & 600 \times 1.1 \\ & = 660 \end{aligned}$$

$$\begin{aligned} (2) \quad & 6 + (-3)^2 \\ & = 6 + 9 \\ & = 15 \end{aligned}$$

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

$$\begin{aligned} (4) \quad & (8a^3b^2 + 4a^2b^2) \div (2ab)^2 \\ & = (8a^3b^2 + 4a^2b^2) \div (4a^2b^2) \\ & = \frac{8a^3b^2}{4a^2b^2} + \frac{4a^2b^2}{4a^2b^2} \\ & = 2a + 1 \end{aligned}$$

$$\begin{aligned} (5) \quad & (3x+7)(3x-7) - 9x(x-1) \\ & = (3x)^2 - 7^2 - 9x \times x - 9x \times (-1) \\ & = 9x^2 - 49 - 9x^2 + 9x \\ & = 9x - 49 \end{aligned}$$

$$\begin{aligned} (6) \quad & (\sqrt{5}+1)^2 - \sqrt{45} \\ & = (\sqrt{5})^2 + 2 \times \sqrt{5} \times 1 + 1^2 - 3\sqrt{5} \\ & = 5 + 2\sqrt{5} + 1 - 3\sqrt{5} \\ & = 6 - \sqrt{5} \end{aligned}$$

1 解答 (1) -4 (2) 12 (3) $\frac{7a-b}{6}$ (4) x^2y (5) $7\sqrt{3}$

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

$$\begin{aligned} (2) \quad & -3 \times (-2^2) \\ & = -3 \times (-4) \\ & = 12 \end{aligned}$$

$$\begin{aligned} (3) \quad & \frac{2a+b}{3} + \frac{a-b}{2} \\ & = \frac{2(2a+b) + 3(a-b)}{6} \\ & = \frac{4a+2b+3a-3b}{6} \\ & = \frac{7a-b}{6} \end{aligned}$$

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

$$\begin{aligned} (5) \quad & \frac{6}{\sqrt{3}} + \sqrt{15} \times \sqrt{5} \\ & = 2\sqrt{3} + 5\sqrt{3} \\ & = 7\sqrt{3} \end{aligned}$$

1 解答 (1) -17 (2) $-\frac{9}{10}$ (3) $5a+b$ (4) 2

$$\begin{aligned}(1) \quad & -9 + (-8) \\ & = -17\end{aligned}$$

$$\begin{aligned}(2) \quad & \frac{3}{4} \div \left(-\frac{5}{6}\right) \\ & = \frac{3}{4} \times \left(-\frac{6}{5}\right) \\ & = -\frac{9}{10}\end{aligned}$$

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

$$\begin{aligned}(4) \quad & \sqrt{12} \times \sqrt{2} \div \sqrt{6} \\ & = \frac{\sqrt{12} \times \sqrt{2}}{\sqrt{6}} \\ & = \sqrt{4} \\ & = 2\end{aligned}$$

1 解答 (1) 8 (2) 2 (3) $4\sqrt{3}$

$$\begin{aligned}(1) \quad & 8 \div 4 + 6 \\ & = 2 + 6 \\ & = 8\end{aligned}$$

$$\begin{aligned}(2) \quad & \frac{1}{2} + \frac{9}{10} \times \frac{5}{3} \\ & = \frac{1}{2} + \frac{3}{2} \\ & = 2\end{aligned}$$

$$\begin{aligned}(3) \quad & 2\sqrt{3} + \sqrt{27} - \frac{3}{\sqrt{3}} \\ & = 2\sqrt{3} + 3\sqrt{3} - \sqrt{3} \\ & = 4\sqrt{3}\end{aligned}$$

1 解答 (1) -2 (2) -9 (3) 0.61 (4) $4\sqrt{2}$ (5) $36a^3$ (6) $4x+5y$

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

$$\begin{aligned} (2) \quad & 6 \div \left(-\frac{2}{3}\right) \\ & = 6 \times \left(-\frac{3}{2}\right) \\ & = -9 \end{aligned}$$

$$\begin{aligned} (3) \quad & 1-0.39 \\ & = 0.61 \end{aligned}$$

$$\begin{aligned} (4) \quad & \sqrt{2} + \sqrt{18} \\ & = \sqrt{2} + 3\sqrt{2} \\ & = 4\sqrt{2} \end{aligned}$$

$$\begin{aligned} (5) \quad & 4a \times (-3a)^2 \\ & = 4a \times 9a^2 \\ & = 36a^3 \end{aligned}$$

$$\begin{aligned} (6) \quad & 3(2x+y) - 2(x-y) \\ & = 6x + 3y - 2x + 2y \\ & = 4x + 5y \end{aligned}$$

1 解答 (1) 9 (2) -41 (3) $\sqrt{7}$

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

$$\begin{aligned}(2) \quad & 9 \div \left(-\frac{1}{5}\right) + 4 \\ &= -45 + 4 \\ &= -41\end{aligned}$$

$$\begin{aligned}(3) \quad & \sqrt{28} - \sqrt{7} \\ &= 2\sqrt{7} - \sqrt{7} \\ &= \sqrt{7}\end{aligned}$$

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

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

$$\begin{aligned} (2) \quad & (-3)^2+4\times(-2) \\ & = 9-8 \\ & = 1 \end{aligned}$$

$$\begin{aligned} (3) \quad & 10xy^2\div(-5y)\times 3x \\ & = -\frac{10xy^2\times 3x}{5y} \\ & = -6x^2y \end{aligned}$$

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

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

1 解答 (1) 2 (2) $7a + 4b$ (3) $1 + 3\sqrt{5}$ (4) $(x + 6)(x - 6)$

$$(1) \quad -2 \times 3 + 8$$

$$= -6 + 8$$

$$= 2$$

$$(2) \quad 2(2a - b) + 3(a + 2b)$$

$$= 4a - 2b + 3a + 6b$$

$$= 7a + 4b$$

$$(3) \quad (\sqrt{5} - 1)(\sqrt{5} + 4)$$

$$= (\sqrt{5})^2 + (-1 + 4)\sqrt{5} - 1 \times 4$$

$$= 5 + 3\sqrt{5} - 4$$

$$= 1 + 3\sqrt{5}$$

$$(4) \quad x^2 - 36$$

$$= (x + 6)(x - 6)$$

1 解答 (1) -9 (2) -6 (3) $4\sqrt{3}$ (4) $(x+5y)(x-5y)$

$$(1) \quad -14 - (-5)$$

$$= -14 + 5$$

$$= -9$$

$$(2) \quad \frac{3}{2} \div \left(-\frac{1}{4}\right)$$

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

$$= -6$$

$$(3) \quad \sqrt{27} + \frac{3}{\sqrt{3}}$$

$$= 3\sqrt{3} + \frac{3 \times \sqrt{3}}{\sqrt{3} \times \sqrt{3}}$$

$$= 3\sqrt{3} + \frac{3\sqrt{3}}{3}$$

$$= 3\sqrt{3} + \sqrt{3}$$

$$= 4\sqrt{3}$$

$$(4) \quad x^2 - 25y^2$$

$$= (x+5y)(x-5y)$$

1 解答 (1) 16 (2) $-\frac{5}{6}y$ (3) $x^2 - 12y^2$ (4) $x = 6$ (5) $x = 5, y = -1$

(6) $x = \frac{5 \pm \sqrt{17}}{4}$

$$\begin{aligned} (1) \quad & 4 - (-6) \times 2 \\ &= 4 - (-12) \\ &= 4 + 12 \\ &= 16 \end{aligned}$$

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

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

$$\begin{aligned} (4) \quad & \frac{3}{2}x + 1 = 10 \\ & 2\left(\frac{3}{2}x + 1\right) = 10 \times 2 \\ & 3x + 2 = 20 \\ & 3x = 18 \\ & x = 6 \end{aligned}$$

$$(5) \quad \begin{cases} x + 4y = -1 & \dots\dots ① \\ -2x + y = 11 & \dots\dots ② \end{cases}$$

$$① \times 2$$

$$\begin{array}{r} 2x + 8y = -2 \\ +) \quad -2x + y = 11 \\ \hline 9y = 9 \end{array}$$

$$y = 1$$

$$y = 1 \text{ を } ① \text{ に代入すると } x + 4 \times 1 = -1$$

$$x = -5$$

$$\text{よって } x = -5, y = 1$$

$$(6) \quad 2x^2 - 5x + 1 = 0$$

解の公式に代入する

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4 \times 2 \times 1}}{2 \times 2}$$

$$x = \frac{5 \pm \sqrt{25 - 8}}{4}$$

$$x = \frac{5 \pm \sqrt{17}}{4}$$