

式の計算⑩ (解答と解説)

1 [解答] (1) $8a+b$ (2) $7x+11y$ (3) $5x+7y$ (4) $4a^2b$ (5) $3a^2$ (6) $\frac{x+5y}{6}$

$$\begin{aligned} (1) \quad 9a - 5b - (a - 6b) &= 9a - 5b - a + 6b \\ &= 9a - a - 5b + 6b \\ &= 8a + b \end{aligned}$$

$$\begin{aligned} (2) \quad 4(x - y) + 3(x + 5y) &= 4x - 4y + 3x + 15y \\ &= 4x + 3x - 4y + 15y \\ &= 7x + 11y \end{aligned}$$

$$\begin{aligned} (3) \quad 2(x + 5y) - 3(y - x) &= 2x + 10y - 3y + 3x \\ &= 2x + 3x + 10y - 3y \\ &= 5x + 7y \end{aligned}$$

$$\begin{aligned} (4) \quad 8ab^2 \times 3a \div 6b &= \frac{8ab^2 \times 3a}{6b} \\ &= 4a^2b \end{aligned}$$

$$\begin{aligned} (5) \quad ab^2 \div (-2b)^2 \times 12a &= ab^2 \div 4b^2 \times 12a \\ &= \frac{ab^2 \times 12a}{4b^2} \\ &= 3a^2 \end{aligned}$$

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

2 [解答] (1) -12 (2) 4

$$\begin{aligned} (1) \quad 3(x - 2y) + 4(x + 3y) &= 3x - 6y + 4x + 12y \\ &= 7x + 6y \end{aligned}$$

$$x = -2, \quad y = \frac{1}{3} \text{ を代入する}$$

$$7x + 6y = 7 \times (-2) + 6 \times \frac{1}{3} = -14 + 2 = -12$$

$$\begin{aligned} (2) \quad 6xy \div (-2x)^2 \times (-12x^2y) &= 6xy \div 4x^2 \times (-12x^2y) \\ &= -\frac{6xy \times 12x^2y}{4x^2} \\ &= -18xy^2 \end{aligned}$$

$$x = -2, \quad y = \frac{1}{3} \text{ を代入する}$$

$$\begin{aligned} -18xy^2 &= -18 \times (-2) \times \frac{1}{3} \times \frac{1}{3} \\ &= 4 \end{aligned}$$

3 [解答] (1) $b = \frac{2}{3}a - \frac{1}{3}$ (2) $b = \frac{2a-c}{3}$

$$\begin{aligned} (1) \quad 2a - 3b &= 1 \\ -3b &= -2a + 1 \\ b &= \frac{2}{3}a - \frac{1}{3} \end{aligned}$$

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

4 [解答] 略

n を整数とすると、奇数から始まる3つの続いた整数は、小さい方から

$$2n+1, \quad 2n+2, \quad 2n+3$$

と表される。このとき、これらの和は

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

$n+1$ は整数だから、 $6(n+1)$ は6の倍数である。

よって、奇数から始まる3つの続いた整数の和は、6の倍数になる。