

B-13 単項式と多項式

正答数

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1 次の^{たんこうしき}単項式の次数と係数をかきなさい。

① $5ab$

② $-x^2$

次数 (2)

次数 (2)

係数 (5)

係数 (-1)

③ $-7xy^2$

④ $\frac{a^3}{7}$

次数 (3)

次数 (3)

係数 (-7)

係数 ($\frac{1}{7}$)

2 次の多項式は何次式かかきなさい。

① $2x^2+5x-4$

② a^2b-2ab

(2 次式)

(3 次式)

B-14 同類項

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● 次の式の同類項をまとめなさい。

$$\begin{aligned} \textcircled{1} \quad & 4a - 3a \\ & = a \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & -xy + 3xy \\ & = 2xy \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad & 5a + 8a - 7b \\ & = 13a - 7b \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad & 6y + 4x - y \\ & = 4x + 5y \end{aligned}$$

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

$$\begin{aligned} \textcircled{6} \quad & 2ab + 8b - 5ab - 16b \\ & = -3ab - 8b \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad & 2x^2 + 3x - 4 + x^2 - x \\ & = 3x^2 + 2x - 4 \end{aligned}$$

$$\begin{aligned} \textcircled{8} \quad & 4a^2 + 3ab - 6a^2 - 2ab - 4b \\ & = -2a^2 + ab - 4b \end{aligned}$$

B-15 多項式の加法

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● 次の計算をしなさい。

$$\begin{aligned} \textcircled{1} \quad & (3x + 2y) + (x + 6y) \\ & = 4x + 8y \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & (4a - 8b) + (5a + 7b) \\ & = 9a - b \end{aligned}$$

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

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

$$\begin{aligned} \textcircled{5} \quad & (3x - 9y + 2) + (3x + 7y - 4) \\ & = 6x - 2y - 2 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad & (2a^2 - 3ab - 6b^2) + (a^2 - 4ab - 3b^2) \\ & = 3a^2 - 7ab - 9b^2 \end{aligned}$$

$$\begin{array}{r} \textcircled{7} \quad 2a + b - 8 \\ +) 3a - 6b + 3 \\ \hline 5a - 5b - 5 \end{array}$$

$$\begin{array}{r} \textcircled{8} \quad 3x^2 - 2x + 6 \\ +) x^2 + 7x - 4 \\ \hline 4x^2 + 5x + 2 \end{array}$$

B-16 多項式の減法

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● 次の計算をしなさい。

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

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

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

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

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

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

$$\begin{array}{r} \textcircled{7} \quad 4a+2b-8 \\ -)2a+ \quad b-6 \\ \hline 2a+ \quad b-2 \end{array}$$

$$\begin{array}{r} \textcircled{8} \quad a^2+3a-2 \\ -)a^2-3a+4 \\ \hline 6a-6 \end{array}$$

B-17 単項式の乗法

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● 次の計算をしなさい。

① $3x \times 4y = 12xy$

② $2a \times (-5b) = -10ab$

③ $(-y) \times y = -y^2$

④ $6a^2 \times 7a = 42a^3$

⑤ $(-x) \times (-5xy) = 5x^2y$

⑥ $x \times (-2x)^2 = 4x^3$

⑦ $\frac{2}{5}x \times 15x^2 = 6x^3$

⑧ $\left(-\frac{1}{2}a\right)^2 \times (-2a) = -\frac{1}{2}a^3$

B-18 単項式の乗法と除法

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● 次の計算をしなさい。

$$\begin{aligned} \textcircled{1} \quad 15xy \div 3y \\ = 5x \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad 12ab \div (-4a) \\ = -3b \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad (-2xy^2) \div xy \\ = -2y \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad (-24a^2b) \div (-6ab) \\ = 4a \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad 2a \times 18ab \div (-3b) \\ = -12a^2 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad 3x^2 \div (-9x^2y) \times (-12y) \\ = 4 \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad 32x^3 \div (-4x) \div 4x \\ = -2x \end{aligned}$$

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

B-19 いろいろな計算②

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● 次の計算をしなさい。

$$\begin{aligned} \textcircled{1} \quad & 4(x-3y) \\ & = 4x-12y \end{aligned}$$

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

$$\begin{aligned} \textcircled{3} \quad & (2x-y+9) \times (-3) \\ & = -6x+3y-27 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad & (15x^2-5y+20) \div 5 \\ & = 3x^2-y+4 \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad & 3(x+3y)+2(3x-4y) \\ & = 3x+9y+6x-8y \\ & = 9x+y \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad & 5(4a-b)-(4a+7b) \\ & = 20a-5b-4a-7b \\ & = 16a-12b \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad & \frac{2x-y}{2} + \frac{3x+4y}{3} \\ & = \frac{3(2x-y)}{6} + \frac{2(3x+4y)}{6} \\ & = \frac{12x+5y}{6} \end{aligned}$$

$$\begin{aligned} \textcircled{8} \quad & \frac{x+4y}{4} - \frac{5x-3y}{8} \\ & = \frac{2(x+4y)}{8} - \frac{5x-3y}{8} \\ & = \frac{-3x+11y}{8} \end{aligned}$$

B-20 式の値②

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● $a = -3$, $b = 4$ のとき, 次の式の値を求めなさい。

$$\begin{aligned}\textcircled{1} \quad & 7a - 5b - 2a + 8b \\ & = 5a + 3b \\ & = 5 \times (-3) + 3 \times 4 \\ & = -3\end{aligned}$$

$$\begin{aligned}\textcircled{2} \quad & -3ab - 5a + 4a + ab \\ & = -2ab - a \\ & = -2 \times (-3) \times 4 - (-3) \\ & = 27\end{aligned}$$

$$\begin{aligned}\textcircled{3} \quad & (a - 4b) + (-a - 4b) \\ & = a - 4b - a - 4b \\ & = -8b \\ & = -8 \times 4 \\ & = -32\end{aligned}$$

$$\begin{aligned}\textcircled{4} \quad & (2ab - b^2) - (ab - 5b^2) \\ & = 2ab - b^2 - ab + 5b^2 \\ & = ab + 4b^2 \\ & = (-3) \times 4 + 4 \times 4^2 \\ & = 52\end{aligned}$$

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

$$\begin{aligned}\textcircled{6} \quad & 4(a + 2b) + 2(3a - b) \\ & = 4a + 8b + 6a - 2b \\ & = 10a + 6b \\ & = 10 \times (-3) + 6 \times 4 \\ & = -6\end{aligned}$$

B-21 等式の変形

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● 次の式を, [] の中に示された文字について解きなさい。

① $x - 2 = y$ [x]
 $x = y + 2$

② $2b = a + 8$ [a]
 $a = 2b - 8$

③ $4m = 5n$ [m]
 $m = \frac{5}{4}n$

④ $x + 2y = 7$ [y]
 $2y = 7 - x$
 $y = \frac{7 - x}{2}$

⑤ $V = \frac{2}{3}S$ [S]
 $S = \frac{3}{2}V$

⑥ $a - c = \frac{b}{2}$ [b]
 $b = 2(a - c)$

⑦ $y = \frac{3}{5}x - 6$ [x]
 $\frac{3}{5}x = y + 6$

⑧ $3(x + y) = z$ [y]
 $x + y = \frac{z}{3}$

$x = \frac{5}{3}(y + 6)$

$y = \frac{z}{3} - x$