

多項式と単項式の乗法

学習日 月 日

年 組 番 氏名

POINT

単項式と多項式との乗法を行うには、分配法則を使って計算すればよい。

$$a(b+c) = ab+ac$$

$$(a+b)c = ac+bc$$

(1) 次の計算をなさい。

① $2(x-y)$

② $-3(a+2b)$

③ $4y(2a-3b)$

④ $-6a(5a+3b-4)$

⑤ $x^2y(3x^3y-4x^2y^2)$

⑥ $-7xy^2(-x^2y+8xy-5)$

⑦ $\frac{1}{2}x(4-16ax)$

⑧ $18ab\left(\frac{5}{6}a^2b-\frac{2}{9}ab^2\right)$

⑨ $(5x^2+3x-2)\times(-4)$

⑩ $(3a-2ab+5b^2)\times(-ab)$

⑪ $(-xy+3x^2y)\times\frac{2}{5}x$

⑫ $\left(-\frac{2}{3}x^2+xy+\frac{7}{4}y^2\right)\times\frac{9}{4}x$

POINT

多項式を単項式でわる除法を行うには、式を分数の形で表して簡単にするか、除法を乗法になおして計算すればよい。

$$(a+b)\div c = \frac{a+b}{c}$$
$$= \frac{a}{c} + \frac{b}{c}$$

$$(a+b)\div c = (a+b)\times\frac{1}{c}$$
$$= a\times\frac{1}{c} + b\times\frac{1}{c}$$

(2) 次の計算をなさい。

① $(2x+8y)\div 4$

② $(7xy+5x)\div x$

③ $(-12x^2+6x)\div(-3x)$

④ $(9a^2b-6ab^2)\div 3ab$

⑤ $(8x^3+4x^2+2x)\div(-2x)$

⑥ $(3x^2y+6xy-18xy^2)\div 3xy$

⑦ $(24x^2+8xy)\div\frac{4}{3}x$

⑧ $\frac{7a^2b+6ab^2}{12}\div\left(-\frac{3}{2}ab\right)$

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$$a(b+c) = ab+ac$$

$$(a+b)c = ac+bc$$

(1) 次の計算をなさい。

$$\begin{aligned} \textcircled{1} 2(x-y) \\ = 2x-2y \end{aligned}$$

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

$$\begin{aligned} \textcircled{3} 4y(2a-3b) \\ = 8ay-12by \end{aligned}$$

$$\begin{aligned} \textcircled{4} -6a(5a+3b-4) \\ = -30a^2-18ab+24a \end{aligned}$$

$$\begin{aligned} \textcircled{5} x^2y(3x^3y-4x^2y^2) \\ = 3x^5y^2-4x^4y^3 \end{aligned}$$

$$\begin{aligned} \textcircled{6} -7xy^2(-x^2y+8xy-5) \\ = 7x^3y^3-56x^2y^3+35xy^2 \end{aligned}$$

$$\begin{aligned} \textcircled{7} \frac{1}{2}x(4-16ax) \\ = 2x-8ax^2 \end{aligned}$$

$$\begin{aligned} \textcircled{8} 18ab\left(\frac{5}{6}a^2b-\frac{2}{9}ab^2\right) \\ = 15a^3b^2-4a^2b^3 \end{aligned}$$

$$\begin{aligned} \textcircled{9} (5x^2+3x-2) \times (-4) \\ = -20x^2-12x+8 \end{aligned}$$

$$\begin{aligned} \textcircled{10} (3a-2ab+5b^2) \times (-ab) \\ = -3a^2b+2a^2b^2-5ab^3 \end{aligned}$$

$$\begin{aligned} \textcircled{11} (-xy+3x^2y) \times \frac{2}{5}x \\ = -\frac{2}{5}x^2y+\frac{6}{5}x^3y \end{aligned}$$

$$\begin{aligned} \textcircled{12} \left(-\frac{2}{3}x^2+xy+\frac{7}{4}y^2\right) \times \frac{9}{4}x \\ = -\frac{3}{2}x^3+\frac{9}{4}x^2y+\frac{63}{16}xy^2 \end{aligned}$$

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$$\begin{aligned} (a+b) \div c &= \frac{a+b}{c} \\ &= \frac{a}{c} + \frac{b}{c} \end{aligned}$$

$$\begin{aligned} (a+b) \div c &= (a+b) \times \frac{1}{c} \\ &= a \times \frac{1}{c} + b \times \frac{1}{c} \end{aligned}$$

(2) 次の計算をなさい。

$$\begin{aligned} \textcircled{1} (2x+8y) \div 4 \\ = \frac{1}{2}x+2y \end{aligned}$$

$$\begin{aligned} \textcircled{2} (7xy+5x) \div x \\ = 7y+5 \end{aligned}$$

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

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

$$\begin{aligned} \textcircled{5} (8x^3+4x^2+2x) \div (-2x) \\ = -4x^2-2x-1 \end{aligned}$$

$$\begin{aligned} \textcircled{6} (3x^2y+6xy-18xy^2) \div 3xy \\ = x+2-6y \end{aligned}$$

$$\begin{aligned} \textcircled{7} (24x^2+8xy) \div \frac{4}{3}x \\ = 18x+6y \end{aligned}$$

$$\begin{aligned} \textcircled{8} \frac{7a^2b+6ab^2}{12} \div \left(-\frac{3}{2}ab\right) \\ = -\frac{7a+6b}{18} \end{aligned}$$