

単項式の乗除混合

例題 次の計算をせよ。

(1) $-15xy \div 5xy \times (-2x)$

答

(2) $12n^2 \div 4mn \times (-2m)^2$

答

練習 次の計算をせよ。

(1) $18ab \times (-2ab) \div 9ab$

答

(2) $-3x^2 \div (-6x^2) \times 2x$

答

(3) $8mn \div (-3m) \div 6mn$

答

(4) $15x^2y^3 \div 5xy^4 \times (3x)^2$

答

(5) $2mn \div (-4mn)^2 \times (-3m)$

答

(6) $-18a^2b^3 \div (-3ab) \div (2b)^2$

答

単項式の乗除混合(2)

例題 次の計算をせよ。

(1) $-\frac{2}{3}ab^3 \times 3a \div \frac{1}{6}b^4$

答

(2) $-\frac{8}{15}xy^2 \div (-2x)^2 \div \frac{2}{5}y^2$

答

練習 次の計算をせよ。

(1) $\frac{9}{10}m^3n \times 2n \div 3m^2$

答

(2) $28a^2b \div \left(-\frac{2}{3}a\right) \div 7b^2$

答

(3) $-\frac{12}{5}x^3y \div 4x^2 \times \frac{1}{6}y$

答

(4) $6xy^3 \div \frac{2}{3}x^2y \times (-2x)^2$

答

(5) $10m^2n \div \left(-\frac{5}{8}mn\right) \times (-m)^2$

答

(6) $6a^2b^3 \div (3a)^2 \div \left(-\frac{3}{4}ab\right)$

答

単項式の乗除混合

例題 次の計算をせよ。

(1) $-15xy \div 5xy \times (-2x)$

★

$$= -15xy \times \frac{1}{5xy} \times (-2x)$$

$$= \frac{\overset{3}{\cancel{15}} \cancel{x}^1 \cancel{y}^1 \times 2x}{\underset{5}{\cancel{5}} \cancel{x}_1 \cancel{y}_1}$$

$$= 6x$$

答 $6x$

(2) $12n^2 \div 4mn \times (-2m)^2$

★

$$= 12n^2 \div 4mn \times 4m^2$$

$$= 12n^2 \times \frac{1}{4mn} \times 4m^2$$

$$= \frac{\overset{3}{\cancel{12}} \cancel{n}^2 \times \cancel{4} m^2}{\underset{4}{\cancel{4}} \cancel{n}} = 12mn$$

答 $12mn$

練習 次の計算をせよ。

(1) $18ab \times (-2ab) \div 9ab$

★

$$= 18ab \times (-2ab) \times \frac{1}{9ab}$$

$$= \frac{\overset{2}{\cancel{18}} \cancel{a}^1 \cancel{b}^1 \times 2ab}{\underset{9}{\cancel{9}} \cancel{a}_1 \cancel{b}_1}$$

$$= -4ab$$

答 $-4ab$

(2) $-3x^2 \div (-6x^2) \times 2x$

★

$$= -3x^2 \times \left(-\frac{1}{6x^2}\right) \times 2x$$

$$= \frac{\overset{1}{\cancel{3}} \cancel{x}^2 \times \cancel{2} x}{\underset{6}{\cancel{6}} \cancel{x}_1 \cancel{x}_1}$$

$$= x$$

答 x

(3) $8mn \div (-3m) \div 6mn$

★

$$= 8mn \times \left(-\frac{1}{3m}\right) \times \frac{1}{6mn}$$

$$= \frac{\overset{4}{\cancel{8}} \cancel{m}^1 \cancel{n}^1}{\underset{3}{\cancel{3}} \cancel{m}_1 \times \underset{6}{\cancel{6}} \cancel{m}_1 \cancel{n}_1}$$

$$= -\frac{4}{9m}$$

答 $-\frac{4}{9m}$

(4) $15x^2y^3 \div 5xy^4 \times (3x)^2$

★

$$= 15x^2y^3 \div 5xy^4 \times 9x^2$$

$$= 15x^2y^3 \times \frac{1}{5xy^4} \times 9x^2$$

$$= \frac{\overset{3}{\cancel{15}} \cancel{x}^2 \cancel{y}^3 \times 9x^2}{\underset{5}{\cancel{5}} \cancel{x} \cancel{y}^4} = \frac{27x^3}{y}$$

答 $\frac{27x^3}{y}$

(5) $2mn \div (-4mn)^2 \times (-3m)$

★

$$= 2mn \div 16m^2n^2 \times (-3m)$$

$$= 2mn \times \frac{1}{16m^2n^2} \times (-3m)$$

$$= \frac{\cancel{2} \cancel{m} \cancel{n} \times \cancel{1} \times \cancel{3} \cancel{m}}{\underset{16}{\cancel{16}} \cancel{m}^2 \cancel{n}^2} = -\frac{3}{8n}$$

答 $-\frac{3}{8n}$

(6) $-18a^2b^3 \div (-3ab) \div (2b)^2$

★

$$= -18a^2b^3 \div (-3ab) \div 4b^2$$

$$= -18a^2b^3 \times \left(-\frac{1}{3ab}\right) \times \frac{1}{4b^2}$$

$$= \frac{\overset{3}{\cancel{18}} \cancel{a}^2 \cancel{b}^3}{\underset{3}{\cancel{3}} \cancel{a} \times \underset{4}{\cancel{4}} \cancel{b}^2} = \frac{3}{2}a$$

答 $\frac{3}{2}a$

単項式の乗除混合(2)

例題 次の計算をせよ。

(1) $-\frac{2}{3}ab^3 \times 3a \div \frac{1}{6}b^4$

★

$$\begin{aligned} &= -\frac{2}{3}ab^3 \times 3a \times \frac{6}{b^4} \\ &= \frac{2a \cancel{b^3}^1 \times \cancel{3}^1 a \times 6}{\cancel{3} \times b^4} \\ &= -\frac{12a^2}{b} \end{aligned}$$

答 $-\frac{12a^2}{b}$

(2) $-\frac{8}{15}xy^2 \div (-2x)^2 \div \frac{2}{5}y^2$

★

$$\begin{aligned} &= -\frac{8}{15}xy^2 \div 4x^2 \div \frac{2}{5}y^2 \\ &= -\frac{8}{15}xy^2 \times \frac{1}{4x^2} \times \frac{5}{2y^2} \\ &= -\frac{\cancel{8}^1 \cancel{x}^1 \cancel{y}^1 \cancel{y}^1 \times \cancel{5}^1}{\cancel{3} \times \cancel{4}^1 \times \cancel{2}^1 \times \cancel{x}^2 \times \cancel{2}^1 \times \cancel{y}^2} = -\frac{1}{3x} \end{aligned}$$

答 $-\frac{1}{3x}$

練習 次の計算をせよ。

(1) $\frac{9}{10}m^3n \times 2n \div 3m^2$

★

$$\begin{aligned} &= \frac{9}{10}m^3n \times 2n \times \frac{1}{3m^2} \\ &= \frac{\cancel{9}^3 \times m^{\cancel{3}} n \times \cancel{2}^1 n}{\cancel{5} \times \cancel{3}^1 \times m^{\cancel{2}}} \\ &= \frac{3mn^2}{5} \end{aligned}$$

答 $\frac{3mn^2}{5}$

(2) $28a^2b \div \left(-\frac{2}{3}a\right) \div 7b^2$

★

$$\begin{aligned} &= 28a^2b \times \left(-\frac{3}{2a}\right) \times \frac{1}{7b^2} \\ &= \frac{\cancel{28}^2 \times a^{\cancel{2}} b^1 \times 3}{\cancel{2}^1 \times a^1 \times \cancel{7}^1 \times b^{\cancel{2}}} \\ &= \frac{6a}{b} \end{aligned}$$

答 $\frac{6a}{b}$

(3) $-\frac{12}{5}x^3y \div 4x^2 \times \frac{1}{6}y$

★

$$\begin{aligned} &= -\frac{12}{5}x^3y \times \frac{1}{4x^2} \times \frac{1}{6}y \\ &= -\frac{\cancel{12}^3 \times \cancel{x}^3 y \times y}{5 \times \cancel{4}^1 \times \cancel{x}^2 \times \cancel{6}^2} \\ &= -\frac{xy^2}{10} \end{aligned}$$

答 $-\frac{xy^2}{10}$

(4) $6xy^3 \div \frac{2}{3}x^2y \times (-2x)^2$

★

$$\begin{aligned} &= 6xy^3 \div \frac{2}{3}x^2y \times 4x^2 = 6xy^3 \times \frac{3}{2x^2y} \times 4x^2 \\ &= \frac{\cancel{6}^3 \times \cancel{x}^1 \times \cancel{y}^3 \times 3 \times \cancel{4}^1 \times x^2}{\cancel{2}^1 \times \cancel{x}^2 \times \cancel{y}^1} \\ &= 36xy^2 \end{aligned}$$

答 $36xy^2$

(5) $10m^2n \div \left(-\frac{5}{8}mn\right) \times (-m)^2$

★

$$\begin{aligned} &= 10m^2n \div \left(-\frac{5}{8}mn\right) \times m^2 \\ &= 10m^2n \times \left(-\frac{8}{5mn}\right) \times m^2 \\ &= -\frac{\cancel{10}^2 \times m^{\cancel{2}} \times \cancel{n}^1 \times 8 \times m^2}{\cancel{5}^1 \times \cancel{m}^1 \times \cancel{n}^1} = -16m^3 \end{aligned}$$

答 $-16m^3$

(6) $6a^2b^3 \div (3a)^2 \div \left(-\frac{3}{4}ab\right)$

★

$$\begin{aligned} &= 6a^2b^3 \div 9a^2 \div \left(-\frac{3}{4}ab\right) \\ &= 6a^2b^3 \times \frac{1}{9a^2} \times \left(-\frac{4}{3ab}\right) \\ &= -\frac{\cancel{6}^2 \times \cancel{a}^2 \times b^{\cancel{3}} \times 4}{9 \times \cancel{a}^2 \times \cancel{3}^1 \times \cancel{a}^1 \times \cancel{b}^1} = -\frac{8b^2}{9a} \end{aligned}$$

答 $-\frac{8b^2}{9a}$