

単項式の乗除（解答と解説）

1 解答 (1) $10ab$ (2) $-8xy$ (3) $-3abc$ (4) $14xyz$

$$(1) 5a \times 2b = 5 \times 2 \times a \times b \\ = 10ab$$

$$(2) 4y \times (-2x) = 4 \times (-2) \times x \times y \\ = -8xy$$

$$(3) (-3ab) \times c = (-3) \times a \times b \times c \\ = -3abc$$

$$(4) (-7z) \times (-2xy) = (-7) \times (-2) \times x \times y \times z \\ = 14xyz$$

2 解答 (1) $14ab$ (2) $48xy$ (3) $-6ab$ (4) $-32xyz$

$$(1) 7a \times 2b = 7 \times 2 \times a \times b \\ = 14ab$$

$$(2) (-6x) \times (-8y) = (-6) \times (-8) \times x \times y \\ = 48xy$$

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

$$(4) 4xy \times (-8z) = 4 \times (-8) \times x \times y \times z \\ = -32xyz$$

3 解答 (1) $-6x^2$ (2) $-8ab^2$ (3) x^2 (4) $-27a^3$

$$(1) (-3x) \times 2x = (-3) \times 2 \times x \times x \\ = -6x^2$$

$$(2) 4ab \times (-2b) = 4 \times (-2) \times a \times b \times b \\ = -8ab^2$$

$$(3) (-x)^2 = (-x) \times (-x) \\ = x^2$$

$$(4) (-3a)^3 = (-3a) \times (-3a) \times (-3a) \\ = (-3) \times (-3) \times (-3) \times a \times a \times a \\ = -27a^3$$

4 解答 (1) $3b$ (2) $4x$ (3) $-2a$ (4) $-3x$

$$(1) 18ab \div 6a = \frac{18ab}{6a} \\ = \frac{18 \times a \times b}{6 \times a} \\ = 3b$$

$$(2) -12xy \div (-3y) = \frac{-12xy}{-3y} \\ = \frac{12xy}{3y} \\ = \frac{12 \times x \times y}{3 \times y} \\ = 4x$$

$$(3) 6a^2 \div (-3a) = \frac{6a^2}{-3a} \\ = -\frac{6a^2}{3a} \\ = -\frac{6 \times a \times a}{3 \times a} \\ = -2a$$

$$(4) (-15x^3) \div 5x^2 = \frac{-15x^3}{5x^2} \\ = -\frac{15x^3}{5x^2} \\ = -\frac{15 \times x \times x \times x}{5 \times x \times x} \\ = -3x$$

5 解答 (1) $15b$ (2) $-9x$

$$\begin{aligned}(1) \quad 12ab \div \frac{4}{5}a &= 12ab \div \frac{4a}{5} \\ &= 12ab \times \frac{5}{4a} \\ &= \frac{12 \times 5 \times a \times b}{4 \times a} \\ &= 15b\end{aligned}$$

$$\begin{aligned}(2) \quad -15x^2 \div \frac{5}{3}x &= -15x^2 \div \frac{5x}{3} \\ &= -15x^2 \times \frac{3}{5x} \\ &= \frac{-15 \times 3 \times x \times x}{5 \times x} \\ &= -9x\end{aligned}$$

6 解答 (1) $-6a$ (2) $2x$ (3) $8a^2b$ (4) $-3y^2$

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

$$\begin{aligned}(2) \quad 40x^3 \div (-5x) \div (-4x) &= \frac{40x^3}{5x \times 4x} \\ &= 2x\end{aligned}$$

$$\begin{aligned}(3) \quad 4a^2 \div 5b \times 10b^2 &= \frac{4a^2 \times 10b^2}{5b} \\ &= 8a^2b\end{aligned}$$

$$\begin{aligned}(4) \quad -5xy^2 \div 15x^2y \times 9xy &= -\frac{5xy^2 \times 9xy}{15x^2y} \\ &= -3y^2\end{aligned}$$

7 解答 (1) $-3a^2$ (2) $3x^2y$ (3) 14 (4) $-12xy$

$$\begin{aligned}(1) \quad 9ab \times 6a \div (-18b) &= -\frac{9ab \times 6a}{18b} \\ &= -3a^2\end{aligned}$$

$$(2) \quad 12x^3y \div 20xy^2 \times 5y^2 = \frac{12x^3y \times 5y^2}{20xy^2}$$

$$= 3x^2y$$

$$\begin{aligned}(3) \quad (-6a) \div \left(-\frac{9}{7}ab\right) \times 3b &= (-6a) \times \left(-\frac{7}{9ab}\right) \times 3b \\ &= \frac{6a \times 7 \times 3b}{9ab} \\ &= 14\end{aligned}$$

$$\begin{aligned}(4) \quad 2x^2y \times 3xy^2 \div \left(-\frac{1}{2}x^2y^2\right) &= 2x^2y \times 3xy^2 \times \left(-\frac{2}{x^2y^2}\right) \\ &= -\frac{2x^2y \times 3xy^2 \times 2}{x^2y^2} \\ &= -12xy\end{aligned}$$

8 解答 (1) $-3a^3$ (2) $4xy$ (3) $3a$ (4) $-2x^2y$ (5) $4b^2$ (6) $-y^3$

(7) $-24a^3b$ (8) $9x^3$ (9) $-10x^3y$ (10) a^2

$$\begin{aligned}(1) \quad 9a^2 \times ab \div (-3b) &= -\frac{9a^2 \times ab}{3b} \\ &= -3a^3\end{aligned}$$

$$\begin{aligned}(2) \quad 16x^2 \div (-4xy) \times (-y^2) &= \frac{16x^2 \times y^2}{4xy} \\ &= 4xy\end{aligned}$$

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

$$\begin{aligned}(4) \quad 8xy^2 \div (-12y) \times 3x &= -\frac{8xy^2 \times 3x}{12y} \\ &= -2x^2y\end{aligned}$$

$$\begin{aligned}(5) \quad 12ab \times (-2ab^2) \div (-6a^2b) &= \frac{12ab \times 2ab^2}{6a^2b} \\ &= 4b^2\end{aligned}$$

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

$$\begin{aligned}(7) \quad 3ab^2 \times 4a^2b \div \left(-\frac{1}{2}b^2\right) &= 3ab^2 \times 4a^2b \times \left(-\frac{2}{b^2}\right) \\ &= -\frac{3ab^2 \times 4a^2b \times 2}{b^2} \\ &= -24a^3b\end{aligned}$$

$$\begin{aligned}(8) \quad x^2 \times (-3xy)^2 \div xy^2 &= x^2 \times 9x^2y^2 \div xy^2 \\ &= \frac{x^2 \times 9x^2y^2}{xy^2} \\ &= 9x^3\end{aligned}$$

$$\begin{aligned}(9) \quad (-4x)^2 \times 5x^4y \div (-2x)^3 &= 16x^2 \times 5x^4y \div (-8x^3) \\ &= -\frac{16x^2 \times 5x^4y}{8x^3} \\ &= -10x^3y\end{aligned}$$

$$(10) \quad \frac{27}{2}ab \div (-3b)^2 \times \frac{2}{3}ab = \frac{27ab}{2} \div 9b^2 \times \frac{2ab}{3}$$

$$\begin{aligned}&= \frac{27ab}{2} \times \frac{1}{9b^2} \times \frac{2ab}{3} \\ &= \frac{27ab \times 1 \times 2ab}{2 \times 9b^2 \times 3} \\ &= a^2\end{aligned}$$