

$$\begin{aligned} ④ \quad 30x^2y \div 6x \\ = \frac{30x^2y}{6x} \\ = 5xy \end{aligned}$$

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

$$\begin{aligned} ⑥ \quad 56ab \div (-7b^2) \\ = \frac{56ab}{-7b^2} \\ = -\frac{8a}{b} \end{aligned}$$

$$\begin{aligned} ⑦ \quad 6xy^2 \div 15y \\ = \frac{6xy^2}{15y} \\ = \frac{2}{5}xy \end{aligned}$$

$$\begin{aligned} ⑧ \quad x^2 \div \frac{x}{9} \\ = x^2 \times \frac{9}{x} \\ = 9x \end{aligned}$$

$$\begin{aligned} ⑨ \quad -15x^2y \div \frac{3}{2}x \\ = \frac{-15x^2y}{1} \times \frac{2}{3x} \\ = -10xy \end{aligned}$$

$$\begin{aligned} ⑩ \quad -16x^2 \div \frac{4}{9}x^2 \\ = \frac{-16x^2}{1} \times \frac{9}{4x^2} \\ = -36 \end{aligned}$$

$$\begin{aligned} ⑪ \quad -\frac{5}{9}x^2 \div \left(-\frac{5}{12}x^3\right) \\ = -\frac{5x^2}{9} \times \left(-\frac{12}{5x^3}\right) \\ = \cancel{5} \times \frac{4}{x} \\ = \frac{4}{x} \end{aligned}$$

$$\begin{aligned} ⑫ \quad \frac{4}{3}y^2 \div (-16y^3) \\ = \frac{4y^2}{3} \times \left(-\frac{1}{16y^3}\right) \\ = -\frac{1}{12} \end{aligned}$$

(3) $x = -\frac{1}{4}, y = \frac{1}{9}$ のとき、次の式の値を求めなさい。

$$\begin{aligned} ① \quad 4x + 9y \\ = 4 \times \left(-\frac{1}{4}\right) + 9 \times \frac{1}{9} \\ = -1 + 1 \\ = 0 \end{aligned}$$

$$\begin{aligned} ② \quad (10x - 6y) - 6(3x - 7y) \\ = 10x - 6y - 18x + 42y \\ = -8x + 36y \\ = -8 \times \left(-\frac{1}{4}\right) + 36 \times \frac{1}{9} \\ = 2 + 4 \\ = 6 \end{aligned}$$

$$\begin{aligned} ③ \quad 3(5x - 3y) + 9(-3x + 4y) \\ = 15x - 9y - 27x + 36y \\ = -12x + 27y \\ = -12 \times \left(-\frac{1}{4}\right) + 27 \times \frac{1}{9} \\ = 3 + 3 \\ = 6 \end{aligned}$$

4 レベルUP問題

(1) 次の2つの式で、左の式から右の式をひきなさい。

$$\begin{aligned} & \frac{1}{3}x - \frac{2}{15}y - \left(-\frac{3}{4}x + \frac{7}{10}y\right) \\ & = \left(\frac{1}{3}x - \frac{2}{15}y\right) - \left(-\frac{3}{4}x + \frac{7}{10}y\right) \\ & = \frac{1}{3}x - \frac{2}{15}y + \frac{3}{4}x - \frac{7}{10}y \\ & = \frac{4}{12}x + \frac{9}{12}x - \frac{4}{30}y - \frac{21}{30}y \\ & = \frac{13}{12}x - \frac{25}{30}y = \frac{13}{12}x - \frac{5}{6}y \end{aligned}$$

(2) 次の計算をしなさい。

$$\begin{aligned} ① \quad (-9a + 6b - 15) \div \left(-\frac{3}{4}\right) \\ = (-9a + 6b - 15) \times \left(-\frac{4}{3}\right) \\ = -9a \times \left(-\frac{4}{3}\right) + 6b \times \left(-\frac{4}{3}\right) - 15 \times \left(-\frac{4}{3}\right) \\ = 12a - 8b + 20 \end{aligned}$$

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

$$\begin{aligned} ③ \quad \frac{2x+y}{8} - \frac{x+y}{2} \\ = \frac{2x+y-4(x+y)}{8} \\ = \frac{2x+y-4x-4y}{8} \\ = \frac{-2x-3y}{8} \\ \text{又は } -\frac{2x+3y}{8} \end{aligned}$$

$$\begin{aligned} ④ \quad \frac{x-2y}{3} - \frac{6x-y}{5} + x \\ = \frac{5(x-2y) - 3(6x-y) + 15x}{15} \\ = \frac{5x-10y-18x+3y+15x}{15} \\ = \frac{2x-7y}{15} \end{aligned}$$

$$\begin{aligned} ⑤ \quad \left(-\frac{15}{8}ab\right) \times (-0.16ab) \\ = -\frac{15ab}{8} \times \left(-\frac{16ab}{100}\right) \\ = \frac{3}{10}a^2b^2 \end{aligned}$$

$$\begin{aligned} ⑦ \quad \left(-\frac{5}{7}ab\right)^2 \times 2a \\ = \frac{25a^2b^2}{49} \times 2a \\ = \frac{50}{49}a^3b^2 \end{aligned}$$

$$\begin{aligned} ⑧ \quad -7xy \times 12y \div (-21x) \\ = \frac{-7xy \times 12y}{1} \times \left(-\frac{1}{21x}\right) \\ = 4y^2 \end{aligned}$$

逆数の
かけ算

$$\begin{aligned} ⑨ \quad 42y^2 \div 7y \div 6y \\ = \frac{42y^2}{1} \times \frac{1}{7y} \times \frac{1}{6y} \\ = 1 \end{aligned}$$

$$\begin{aligned} ⑩ \quad -\frac{6}{13}x^2y \div \frac{9}{4}y \div \left(-\frac{20x}{39y}\right) \\ = -\frac{6x^2y}{13} \times \frac{4}{9y} \times \left(-\frac{39y}{20x}\right) \\ = \cancel{6} \times \frac{4}{\cancel{9}} \times \frac{1}{5} = \frac{2}{5}xy \end{aligned}$$

(3) $x = \frac{1}{4}, y = \frac{1}{2}$ のとき、次の式の値を求めなさい。

$$\begin{aligned} & \frac{1}{3}(5x-7y) - \frac{3x-9y}{5} \\ & = \frac{5(5x-7y) - 3(3x-9y)}{15} \\ & = \frac{25x-35y-9x+27y}{15} \end{aligned}$$

$$\begin{aligned} & = \frac{16}{15}x - \frac{8}{15}y \\ & = \frac{16}{15} \times \frac{1}{4} - \frac{8}{15} \times \frac{1}{2} \\ & = \frac{4}{15} - \frac{4}{15} = 0 \end{aligned}$$

先に文字の
計算をする
↓
後で代入する

(4) 次の計算の答えが合うように、 $\square$ に+、-をあてはめなさい。

$$\begin{aligned} ① \quad 5x \square 6y \square 2x \square 3y \\ = 7x + 3y \end{aligned}$$

$$\begin{aligned} 5x \square 2x &= 7x, \quad \square 6y \square 3y = +3y \\ \text{同類項どうしを注目してみよう!} \end{aligned}$$

$$\begin{aligned} ② \quad 4a^2 \square a \square 5a \square a^2 \\ = 3a^2 - 6a \end{aligned}$$

$$4a^2 \square a^2, \quad \square a \square 5a = -6a$$