

# EDUX 到達度確認テスト

## 【式の計算】 第6回

## 詳解

1 16点 (各8点)

$$(1) 6a + 3a - 2a = 7a$$

$$(2) -3b + 5b - b = b$$

2 24点 (各4点)

$$(1) \frac{1}{3}x^2y \div \left(-\frac{2}{9}xy^2\right) \times 2xy$$

$$= \frac{x^2y}{3} \times \left(-\frac{9}{2xy^2}\right) \times 2xy$$

$$= -\frac{x^2y \times 9 \times 2xy}{3 \times 2xy^2}$$

$$= -\frac{\overset{1}{\cancel{x}} \times x \times \overset{1}{\cancel{y}} \times \overset{3}{\cancel{9}} \times \overset{1}{\cancel{2}} \times x \times \overset{1}{\cancel{y}}}{\overset{1}{\cancel{3}} \times \overset{1}{\cancel{2}} \times \overset{1}{\cancel{x}} \times \overset{1}{\cancel{y}} \times \overset{1}{\cancel{y}} \times \overset{1}{\cancel{y}}}$$

$$= -3x^2$$

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

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

$$= \frac{2ab \times b^2 \times 6}{3 \times 2 \times ab}$$

$$= \frac{\overset{1}{\cancel{2}} \times \overset{1}{\cancel{a}} \times \overset{1}{\cancel{b}} \times \overset{1}{\cancel{b}} \times b \times b \times \overset{2}{\cancel{6}}}{\overset{1}{\cancel{3}} \times \overset{1}{\cancel{2}} \times \overset{1}{\cancel{a}} \times \overset{1}{\cancel{b}} \times \overset{1}{\cancel{b}} \times \overset{1}{\cancel{b}}}$$

$$= 2b^2$$

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

$$= (-x^2y) \times \frac{4}{3x^3y} \times \left(-\frac{3}{2xy}\right)$$

$$= \frac{x^2y \times 4 \times 3}{3x^3y \times 2xy}$$

$$= \frac{\overset{1}{\cancel{x}} \times \overset{1}{\cancel{x}} \times \overset{1}{\cancel{y}} \times \overset{2}{\cancel{4}} \times \overset{1}{\cancel{3}}}{\overset{1}{\cancel{3}} \times \overset{1}{\cancel{x}} \times \overset{1}{\cancel{x}} \times \overset{1}{\cancel{y}} \times x \times \overset{1}{\cancel{y}} \times \overset{2}{\cancel{2}} \times x \times y}$$

$$= \frac{2}{x^2y}$$

$$(4) \frac{3}{4}xy^2 \times \frac{1}{3}x^2y \div \left(-\frac{1}{2}x^3y\right)$$

$$= \frac{3xy^2}{4} \times \frac{x^2y}{3} \times \left(-\frac{2}{x^3y}\right)$$

$$= -\frac{3xy^2 \times x^2y \times 2}{4 \times 3 \times x^3y}$$

$$= -\frac{\overset{1}{\cancel{3}} \times \overset{1}{\cancel{x}} \times \overset{1}{\cancel{y}} \times \overset{1}{\cancel{y}} \times y \times \overset{1}{\cancel{x}} \times \overset{1}{\cancel{x}} \times y \times \overset{1}{\cancel{2}}}{\overset{1}{\cancel{4}} \times \overset{1}{\cancel{3}} \times \overset{1}{\cancel{x}} \times \overset{1}{\cancel{y}} \times \overset{1}{\cancel{y}} \times \overset{1}{\cancel{x}} \times \overset{1}{\cancel{x}} \times \overset{1}{\cancel{y}} \times \overset{1}{\cancel{y}}}$$

$$= -\frac{1}{2}y^2$$

$$\begin{aligned} (5) \quad & \left(-\frac{1}{5}a^3b^2\right) \div \left(-\frac{2}{5}a^2b^3\right) \div \left(-\frac{1}{8}a^2b^3\right) \\ &= \left(-\frac{a^3b^2}{5}\right) \times \left(-\frac{5}{2a^2b^3}\right) \times \left(-\frac{8}{a^2b^3}\right) \\ &= -\frac{a^3b^2 \times 5 \times 8}{5 \times 2a^2b^3 \times a^2b^3} \\ &= -\frac{\overset{1}{\cancel{5}} \times \overset{1}{\cancel{5}} \times \overset{1}{\cancel{5}} \times \overset{1}{\cancel{5}} \times \overset{1}{\cancel{5}} \times \overset{1}{\cancel{5}} \times \overset{1}{\cancel{5}} \times \overset{4}{\cancel{5}}}{\underset{1}{\cancel{5}} \times \underset{1}{\cancel{2}} \times \underset{1}{\cancel{5}} \times \underset{1}{\cancel{5}} \times \underset{1}{\cancel{5}} \times \underset{1}{\cancel{5}} \times \underset{1}{\cancel{5}} \times \underset{1}{\cancel{5}} \times \underset{1}{\cancel{5}} \times a \times b \times b \times b} \\ &= -\frac{4}{ab^4} \end{aligned}$$

$$\begin{aligned} (6) \quad & \frac{6}{35}a^3b \div \left(-\frac{4}{21}ab\right) \div \left(-\frac{3}{5}ab\right) \\ &= \frac{6a^3b}{35} \times \left(-\frac{21}{4ab}\right) \times \left(-\frac{5}{3ab}\right) \\ &= \frac{6a^3b \times 21 \times 5}{35 \times 4ab \times 3ab} \\ &= \frac{\overset{1}{\cancel{35}} \times \overset{1}{\cancel{5}} \times \overset{1}{\cancel{5}} \times a \times \overset{1}{\cancel{5}} \times \overset{3}{\cancel{21}} \times \overset{1}{\cancel{5}}}{\underset{1}{\cancel{35}} \times \underset{2}{\cancel{4}} \times \underset{1}{\cancel{5}} \times \underset{1}{\cancel{5}} \times \underset{1}{\cancel{5}} \times \underset{1}{\cancel{5}} \times \underset{1}{\cancel{5}} \times b} \\ &= \frac{3a}{2b} \end{aligned}$$

**3** 16 点 (各 8 点)

$$\begin{aligned} (1) \quad & 3x + \{2y - (9x + 2y)\} = 3x + 2y - (9x + 2y) \\ &= 3x + 2y - 9x - 2y \\ &= -6x \end{aligned}$$

$$\begin{aligned} (2) \quad & \frac{1}{2}x + \left\{\frac{1}{3}y - \left(\frac{1}{3}x - \frac{1}{2}y\right)\right\} = \frac{1}{2}x + \frac{1}{3}y - \left(\frac{1}{3}x - \frac{1}{2}y\right) \\ &= \frac{1}{2}x + \frac{1}{3}y - \frac{1}{3}x + \frac{1}{2}y \\ &= \frac{1}{6}x + \frac{5}{6}y \end{aligned}$$

**4** 16 点 (各 8 点)

$$\begin{aligned} (1) \quad & \frac{1}{3}(4a + b) - \frac{1}{4}(3a + 2b) = \frac{4(4a + b) - 3(3a + 2b)}{12} \\ &= \frac{16a + 4b - 9a - 6b}{12} \\ &= \frac{7a - 2b}{12} \end{aligned}$$

$$\begin{aligned} (2) \quad & \frac{1}{5}(3x - 2y) - \frac{1}{6}(7x + 7y) = \frac{6(3x - 2y) - 5(7x + 7y)}{30} \\ &= \frac{18x - 12y - 35x - 35y}{30} \\ &= \frac{-17x - 47y}{30} \end{aligned}$$

**5** 36 点 (各 9 点)

(1)  $4x + y = a$

$$y = a - 4x$$

(2)  $2x - 6 = 5 - y$

$$y = 5 - 2x + 6$$

$$y = -2x + 11$$

(3)  $\frac{1}{3}ab^2 = c$

$$ab^2 = 3c$$

$$a = \frac{3c}{b^2}$$

(4)  $a = 2b + 3c$

$$2b + 3c = a$$

$$2b = a - 3c$$

$$b = \frac{a - 3c}{2}$$

**6** 6 点

6 けたの 2 進数で最小のものは  $100000_{(2)}$  であり, 最大ものは  $111111_{(2)}$  である。

よって

$$100000_{(2)} = 1 \times 2^5 + 0 \times 2^4 + 0 \times 2^3 + 0 \times 2^2 + 0 \times 2 + 0$$

$$= 32 + 0 + 0 + 0 + 0 + 0$$

$$= 32$$

$$111111_{(2)} = 1 \times 2^5 + 1 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 + 1 \times 2 + 1$$

$$= 32 + 16 + 8 + 4 + 2 + 1$$

$$= 63$$

ゆえに, 32 から 63 までの数となる。