

## 反射テスト 文字式 展開 $(a \pm b)^2$ 03

1. 次の式を展開せよ。(S級1分5秒, A級1分30秒, B級2分20秒, C級3分40秒)

(1)  $(s + 4t)^2$

(2)  $(2x - y)^2$

(3)  $(x + ab)^2$

(4)  $(ax - 5)^2$

(5)  $(3 + 2x)^2$

(6)  $(2a - 0.3)^2$

(7)  $(5x + 8y)^2$

(8)  $\left(x - \frac{1}{6}y\right)^2$

(9)  $(abc + def)^2$

(10)  $\left(\frac{x}{3} - \frac{y}{2}\right)^2$

2. 次の式を展開せよ。(S級1分10秒, A級1分40秒, B級2分30秒, C級3分50秒)

(1)  $(p + 3q)^2$

(2)  $(4x - y)^2$

(3)  $(ab + y)^2$

(4)  $(ax - 9)^2$

(5)  $(5 + 2x)^2$

(6)  $(3a - 0.4)^2$

(7)  $(3x + 7y)^2$

(8)  $\left(x - \frac{1}{8}y\right)^2$

(9)  $(xy - abcd)^2$

(10)  $\left(\frac{x}{a} - \frac{y}{b}\right)^2$

## 反射テスト 文字式 展開 $(a \pm b)^2$ 03 解答解説

1. 次の式を展開せよ。(S級1分5秒, A級1分30秒, B級2分20秒, C級3分40秒)

$$\star (a + b)^2 = a^2 + 2ab + b^2$$

$$\star (a - b)^2 = a^2 - 2ab + b^2$$

$$(1) \quad (s + 4t)^2$$

$$= s^2 + 8st + 16t^2$$

$$(2) \quad (2x - y)^2$$

$$= 4x^2 - 4xy + y^2$$

$$(3) \quad (x + ab)^2$$

$$= x^2 + 2abx + a^2b^2$$

$$(4) \quad (ax - 5)^2$$

$$= a^2x^2 - 10ax + 25$$

$$(5) \quad (3 + 2x)^2$$

$$= 9 + 12x + 4x^2$$

$$(6) \quad (2a - 0.3)^2$$

$$= (2a)^2 - 2 \cdot 2a \cdot 0.3 + 0.3^2 \\ = 4a^2 - 1.2a + 0.09$$

$$(7) \quad (5x + 8y)^2$$

$$= (5x)^2 + 2 \cdot 5x \cdot 8y + (8y)^2 \\ = 25x^2 + 80xy + 64y^2$$

$$(8) \quad \left(x - \frac{1}{6}y\right)^2$$

$$= x^2 - 2 \cdot x \cdot \frac{1}{6}y + \left(\frac{1}{6}y\right)^2 \\ = x^2 - \frac{1}{3}xy + \frac{1}{36}y^2$$

$$(9) \quad (abc + def)^2$$

$$= a^2b^2c^2 + 2abcdef + d^2e^2f^2$$

$$(10) \quad \left(\frac{x}{3} - \frac{y}{2}\right)^2$$

$$= \left(\frac{x}{3}\right)^2 - 2 \cdot \frac{x}{3} \cdot \frac{y}{2} + \left(\frac{y}{2}\right)^2 \\ = \frac{x^2}{9} - \frac{xy}{3} + \frac{y^2}{4}$$

2. 次の式を展開せよ。(S級1分10秒, A級1分40秒, B級2分30秒, C級3分50秒)

$$(1) \quad (p+3q)^2 \\ = p^2 + 6pq + 9q^2$$

$$(2) \quad (4x-y)^2 \\ = 16x^2 - 8xy + y^2$$

$$(3) \quad (ab+y)^2 \\ = a^2b^2 + 2aby + y^2$$

$$(4) \quad (ax-9)^2 \\ = a^2x^2 - 18ax + 81$$

$$(5) \quad (5+2x)^2 \\ = 25 + 20x + 4x^2$$

$$(6) \quad (3a-0.4)^2 \\ = (3a)^2 - 2 \cdot 3a \cdot 0.4 + 0.4^2 \\ = 9a^2 - 2.4a + 0.16$$

$$(7) \quad (3x+7y)^2 \\ = (3x)^2 + 2 \cdot 3x \cdot 7y + (7y)^2 \\ = 9x^2 + 42xy + 49y^2$$

$$(8) \quad \left(x - \frac{1}{8}y\right)^2 \\ = x^2 - 2 \cdot x \cdot \frac{1}{8}y + \left(\frac{1}{8}y\right)^2 \\ = x^2 - \frac{1}{4}xy + \frac{1}{64}y^2$$

$$(9) \quad (xy-abcd)^2 \\ = x^2y^2 - 2abcdxy + a^2b^2c^2d^2$$

$$(10) \quad \left(\frac{x}{a} - \frac{y}{b}\right)^2 \\ = \left(\frac{x}{a}\right)^2 - 2 \cdot \frac{x}{a} \cdot \frac{y}{b} + \left(\frac{y}{b}\right)^2 \\ = \frac{x^2}{a^2} - \frac{2xy}{ab} + \frac{y^2}{b^2}$$