

反射テスト 文字式 展開 $(x + a)(x + b)$ 02

1. 次の式を展開せよ。(S級45秒, A級1分, B級1分20秒, C級2分)

(1) $(x + 4)(x + 3)$

(2) $(x + 6)(x - 4)$

(3) $(x - 1)(x - 7)$

(4) $(x + 5)(x - 9)$

(5) $(x + y)(x - 3y)$

(6) $(x - 2a)(x - a)$

(7) $(x + 3a)(x - 5a)$

(8) $(2x - 5)(2x + 3)$

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

(1) $(x + 2)(x + 3)$

(2) $(x + 7)(x - 2)$

(3) $(x - 2)(x - 4)$

(4) $(x - 4)(x + 8)$

(5) $(x + 2y)(x - 3y)$

(6) $(x - 8a)(x - a)$

(7) $(x + 4a)(x - 5a)$

(8) $(3x - 2)(3x + 4)$

反射テスト 文字式 展開 $(x + a)(x + b)$ 02 解答解説

1. 次の式を展開せよ。(S級45秒, A級1分, B級1分20秒, C級2分)

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

和 積

(1) $(x + 4)(x + 3)$

$$\begin{aligned} &= x^2 + (4 + 3)x + 4 \cdot 3 \\ &= x^2 + 7x + 12 \end{aligned}$$

(2) $(x + 6)(x - 4)$

$$\begin{aligned} &= x^2 + (6 - 4)x + 6 \cdot (-4) \\ &= x^2 + 2x - 24 \end{aligned}$$

(3) $(x - 1)(x - 7)$

$$\begin{aligned} &= x^2 + (-1 - 7)x + (-1) \cdot (-7) \\ &= x^2 - 8x + 7 \end{aligned}$$

(4) $(x + 5)(x - 9)$

$$\begin{aligned} &= x^2 + (5 - 9)x + 5 \cdot (-9) \\ &= x^2 - 4x - 45 \end{aligned}$$

(5) $(x + y)(x - 3y)$

$$\begin{aligned} &= x^2 + (y - 3y)x + y \cdot (-3y) \\ &= x^2 - 2xy - 3y^2 \end{aligned}$$

(6) $(x - 2a)(x - a)$

$$\begin{aligned} &= x^2 + (-2a - a)x + (-2a) \cdot (-a) \\ &= x^2 - 3ax + 2a^2 \end{aligned}$$

(7) $(x + 3a)(x - 5a)$

$$\begin{aligned} &= x^2 + (3a - 5a)x + 3a \cdot (-5a) \\ &= x^2 - 2ax - 15a^2 \end{aligned}$$

(8) $(2x - 5)(2x + 3)$

$$\begin{aligned} &= (2x)^2 + (-5 + 3) \cdot 2x + (-5) \cdot 3 \\ &= 4x^2 - 4x - 15 \end{aligned}$$

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

(1) $(x+2)(x+3)$

$$\begin{aligned} &= x^2 + (2+3)x + 2 \cdot 3 \\ &= x^2 + 5x + 6 \end{aligned}$$

(2) $(x+7)(x-2)$

$$\begin{aligned} &= x^2 + (7-2)x + 7 \cdot (-2) \\ &= x^2 + 5x - 14 \end{aligned}$$

(3) $(x-2)(x-4)$

$$\begin{aligned} &= x^2 + (-2-4)x + (-2) \cdot (-4) \\ &= x^2 - 6x + 8 \end{aligned}$$

(4) $(x-4)(x+8)$

$$\begin{aligned} &= x^2 + (-4+8)x + (-4) \cdot 8 \\ &= x^2 + 4x - 32 \end{aligned}$$

(5) $(x+2y)(x-3y)$

$$\begin{aligned} &= x^2 + (2y-3y)x + 2y \cdot (-3y) \\ &= x^2 - xy - 6y^2 \end{aligned}$$

(6) $(x-8a)(x-a)$

$$\begin{aligned} &= x^2 + (-8a-a)x + (-8a) \cdot (-a) \\ &= x^2 - 9ax + 8a^2 \end{aligned}$$

(7) $(x+4a)(x-5a)$

$$\begin{aligned} &= x^2 + (4a-5a)x + 4a \cdot (-5a) \\ &= x^2 - ax - 20a^2 \end{aligned}$$

(8) $(3x-2)(3x+4)$

$$\begin{aligned} &= (3x)^2 + (-2+4) \cdot 3x + (-2) \cdot 4 \\ &= 9x^2 + 6x - 8 \end{aligned}$$