

# 式の展開

\_\_\_\_年 組 名前

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■ 次の式を展開しなさい。

①  $(a+b+c)(a-b+c)$

②  $(x+y+z)^2$

③  $(x-y-8)(x-y-6)$

④  $(a-b+9)(a-b-9)$

⑤  $(a+b-7)(a-b-7)$

⑥  $(a+b-c)(a+b+c)$

⑦  $(a-b-4)^2$

⑧  $(x+y+2)(x+y+1)$

■ 次の式を展開しなさい。

①  $(a+b+c)(a-b+c)$

$$\begin{aligned} a+c &= X \text{とおくと} \\ (X+b)(X-b) \\ &= X^2 - b^2 \\ &= (a+c)^2 - b^2 \end{aligned}$$

$$a^2 + 2ac + c^2 - b^2$$

②  $(x+y+z)^2$

$$\begin{aligned} x+y &= A \text{とおくと} \\ (A+z)^2 \\ &= A^2 + 2zA + z^2 \\ &= (x+y)^2 + 2z(x+y) + z^2 \end{aligned}$$

$$x^2 + 2xy + y^2 + 2xz + 2yz + z^2$$

③  $(x-y-8)(x-y-6)$

$$\begin{aligned} x-y &= A \text{とおくと} \\ (A-8)(A-6) \\ &= A^2 - 14A + 48 \\ &= (x-y)^2 - 14(x-y) + 48 \end{aligned}$$

$$x^2 - 2xy + y^2 - 14x + 14y + 48$$

④  $(a-b+9)(a-b-9)$

$$\begin{aligned} a-b &= X \text{とおくと} \\ (X+9)(X-9) \\ &= X^2 - 81 \\ &= (a-b)^2 - 81 \end{aligned}$$

$$a^2 - 2ab + b^2 - 81$$

⑤  $(a+b-7)(a-b-7)$

$$\begin{aligned} a-7 &= X \text{とおくと} \\ (X+b)(X-b) \\ &= X^2 - b^2 \\ &= (a-7)^2 - b^2 \end{aligned}$$

$$a^2 - 14a + 49 - b^2$$

⑥  $(a+b-c)(a+b+c)$

$$\begin{aligned} a+b &= X \text{とおくと} \\ (X-c)(X+c) \\ &= X^2 - c^2 \\ &= (a+b)^2 - c^2 \end{aligned}$$

$$a^2 + 2ab + b^2 - c^2$$

⑦  $(a-b-4)^2$

$$\begin{aligned} a-b &= X \text{とおくと} \\ (X-4)^2 \\ &= X^2 - 8X + 16 \\ &= (a-b)^2 - 8(a-b) + 16 \end{aligned}$$

$$a^2 - 2ab + b^2 - 8a + 8b + 16$$

⑧  $(x+y+2)(x+y+1)$

$$\begin{aligned} x+y &= A \text{とおくと} \\ (A+2)(A+1) \\ &= A^2 + 3A + 2 \\ &= (x+y)^2 + 3(x+y) + 2 \end{aligned}$$

$$x^2 + 2xy + y^2 + 3x + 3y + 2$$