

式の展開

____年 ____組 名前

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■ 次の式を展開しなさい。

① $(x+y+z)(x+y-z)$

② $(a-b-2)(a-b+1)$

③ $(m+n+4)(m-n+4)$

④ $(a-b+c)^2$

⑤ $(a-b-5)(a-b+5)$

⑥ $(x-y-z)(x+y-z)$

⑦ $(x+y-6)(x+y+8)$

⑧ $(x+y-7)^2$

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■ 次の式を展開しなさい。

① $(x+y+z)(x+y-z)$

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

$$x^2 + 2xy + y^2 - z^2$$

② $(a-b-2)(a-b+1)$

$$\begin{aligned} a-b &= X \text{とおくと} \\ (X-2)(X+1) \\ &= X^2 - X - 2 \\ &= (a-b)^2 - (a-b) - 2 \end{aligned}$$

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

③ $(m+n+4)(m-n+4)$

$$\begin{aligned} m+4 &= X \text{とおくと} \\ (X+n)(X-n) \\ &= X^2 - n^2 \\ &= (m+4)^2 - n^2 \end{aligned}$$

$$m^2 + 8m + 16 - n^2$$

④ $(a-b+c)^2$

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

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

⑤ $(a-b-5)(a-b+5)$

$$\begin{aligned} a-b &= X \text{とおくと} \\ (X-5)(X+5) \\ &= X^2 - 25 \\ &= (a-b)^2 - 25 \end{aligned}$$

$$a^2 - 2ab + b^2 - 25$$

⑥ $(x-y-z)(x+y-z)$

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

$$x^2 - 2xz + z^2 - y^2$$

⑦ $(x+y-6)(x+y+8)$

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

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

⑧ $(x+y-7)^2$

$$\begin{aligned} x+y &= A \text{とおくと} \\ (A-7)^2 \\ &= A^2 - 14A + 49 \\ &= (x+y)^2 - 14(x+y) + 49 \end{aligned}$$

$$x^2 + 2xy + y^2 - 14x - 14y + 49$$