

式の展開

____年 ____組 名前

____ / 8

■ 次の式を展開しなさい。

① $(a+b-c)(a-b-c)$

② $(x-y+z)^2$

③ $(a+b+5)(a+b-6)$

④ $(s+t+1)^2$

⑤ $(x-y-4)(x-y+4)$

⑥ $(x+y-2)(x+y-3)$

⑦ $(m+n+7)(m-n+7)$

⑧ $(x+y-z)(x+y+z)$

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■ 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 $(a+b+5)(a+b-6)$

$$\begin{aligned} a+b &= X \text{とおくと} \\ (X+5)(X-6) \\ &= X^2 - X - 30 \\ &= (a+b)^2 - (a+b) - 30 \end{aligned}$$

$$a^2 + 2ab + b^2 - a - b - 30$$

④ $(s+t+1)^2$

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

$$s^2 + 2st + t^2 + 2s + 2t + 1$$

⑤ $(x-y-4)(x-y+4)$

$$\begin{aligned} x-y &= A \text{とおくと} \\ (A-4)(A+4) \\ &= A^2 - 16 \\ &= (x-y)^2 - 16 \end{aligned}$$

$$x^2 - 2xy + y^2 - 16$$

⑥ $(x+y-2)(x+y-3)$

$$\begin{aligned} x+y &= A \text{とおくと} \\ (A-2)(A-3) \\ &= A^2 - 5A + 6 \\ &= (x+y)^2 - 5(x+y) + 6 \end{aligned}$$

$$x^2 + 2xy + y^2 - 5x - 5y + 6$$

⑦ $(m+n+7)(m-n+7)$

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

$$m^2 + 14m + 49 - n^2$$

⑧ $(x+y-z)(x+y+z)$

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

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