

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 $(x+y+7)(x-y+7)$

③ $(a-b-c)^2$

④ $(a-b+c)(a-b-c)$

⑤ $(x+y-3)^2$

⑥ $(a-b+1)(a-b+9)$

⑦ $(x+y+5)(x+y-8)$

⑧ $(x+y+4)(x+y-4)$

■ 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 $(x+y+7)(x-y+7)$

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

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

③ $(a-b-c)^2$

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

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

④ $(a-b+c)(a-b-c)$

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

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

⑤ $(x+y-3)^2$

$$\begin{aligned} x+y &= A \text{とおくと} \\ (A-3)^2 \\ &= A^2 - 6A + 9 \\ &= (x+y)^2 - 6(x+y) + 9 \end{aligned}$$

$$x^2 + 2xy + y^2 - 6x - 6y + 9$$

⑥ $(a-b+1)(a-b+9)$

$$\begin{aligned} a-b &= X \text{とおくと} \\ (X+1)(X+9) \\ &= X^2 + 10X + 9 \\ &= (a-b)^2 + 10(a-b) + 9 \end{aligned}$$

$$a^2 - 2ab + b^2 + 10a - 10b + 9$$

⑦ $(x+y+5)(x+y-8)$

$$\begin{aligned} x+y &= A \text{とおくと} \\ (A+5)(A-8) \\ &= A^2 - 3A - 40 \\ &= (x+y)^2 - 3(x+y) - 40 \end{aligned}$$

$$x^2 + 2xy + y^2 - 3x - 3y - 40$$

⑧ $(x+y+4)(x+y-4)$

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

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