

【要点】 ②乗法公式の利用

<乗法公式>

(1) $(x+a)(x+b) = x^2 + (a+b)x + ab$ の利用

$$\begin{aligned} \text{[例]} \quad (x+3)(x-2) \\ &= x^2 + (3-2)x + 3 \times (-2) \\ &= x^2 + x - 6 \end{aligned}$$

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

(2) $(x+a)^2 = x^2 + 2ax + a^2$ の利用

$$\begin{aligned} \text{[例]} \quad (x+4)^2 \\ &= x^2 + 2 \times 4 \times x + 4^2 \\ &= x^2 + 8x + 16 \end{aligned}$$

$$\begin{aligned} (2x+3)^2 \\ &= (2x)^2 + 2 \times 3 \times 2x + 3^2 \\ &= 4x^2 + 12x + 9 \end{aligned}$$

(3) $(x-a)^2 = x^2 - 2ax + a^2$ の利用

$$\begin{aligned} \text{[例]} \quad (a-5)^2 \\ &= a^2 - 2 \times 5 \times a + 5^2 \\ &= a^2 - 10a + 25 \end{aligned}$$

$$\begin{aligned} (3x-y)^2 \\ &= (3x)^2 - 2 \times y \times 3x + y^2 \\ &= 9x^2 - 6xy + y^2 \end{aligned}$$

(4) $(x+a)(x-a) = x^2 - a^2$ の利用

$$\begin{aligned} \text{[例]} \quad (x+6)(x-6) \\ &= x^2 - 6^2 \\ &= x^2 - 36 \end{aligned}$$

$$\begin{aligned} (3a-2b)(3a+2b) \\ &= (3a)^2 - (2b)^2 \\ &= 9a^2 - 4b^2 \end{aligned}$$