

因数分解③ 解答と解説

1 解答 (1) $(x+1)^2$ (2) $(x-5)^2$ (3) $(x+2)(x-2)$ (4) $(y+7)(y-7)$

$$(1) \quad x^2 + 2x + 1 = x^2 + 2 \times 1 \times x + 1^2 \\ = (x+1)^2$$

$$(2) \quad x^2 - 10x + 25 = x^2 - 2 \times 5 \times x + 5^2 \\ = (x-5)^2$$

$$(3) \quad x^2 - 4 = x^2 - 2^2 \\ = (x+2)(x-2)$$

$$(4) \quad y^2 - 49 = y^2 - 7^2 \\ = (y+7)(y-7)$$

2 解答 (1) $(x+7)^2$ (2) $(x-8)^2$ (3) $(x+10)(x-10)$ (4) $(y-\frac{1}{2})^2$

$$(5) \quad \left(a + \frac{1}{4}\right)\left(a - \frac{1}{4}\right) \quad (6) \quad (3+t)(3-t)$$

$$(1) \quad x^2 + 14x + 49 = x^2 + 2 \times 7 \times x + 7^2 \\ = (x+7)^2$$

$$(2) \quad x^2 - 16x + 64 = x^2 - 2 \times 8 \times x + 8^2 \\ = (x-8)^2$$

$$(3) \quad x^2 - 100 = x^2 - 10^2 \\ = (x+10)(x-10)$$

$$(4) \quad y^2 - y + \frac{1}{4} = y^2 - 2 \times \frac{1}{2} \times y + \left(\frac{1}{2}\right)^2 \\ = \left(y - \frac{1}{2}\right)^2$$

$$(5) \quad a^2 - \frac{1}{16} = a^2 - \left(\frac{1}{4}\right)^2$$

$$= \left(a + \frac{1}{4}\right)\left(a - \frac{1}{4}\right)$$

$$(6) \quad 9 - t^2 = 3^2 - t^2 \\ = (3+t)(3-t)$$

$$[9 - t^2 = -(t^2 - 9) = -(t+3)(t-3) \text{ としてもよい}]$$

3 解答 (1) $(x-1)(x-12)$ (2) $(x+7)(x-4)$ (3) $(a-4)^2$ (4) $(4+x)(4-x)$

$$(1) \quad x^2 - 13x + 12 = x^2 + \{(-1) + (-12)\}x + (-1)(-12) \\ = (x-1)(x-12)$$

$$(2) \quad x^2 + 3x - 28 = x^2 + \{7 + (-4)\}x + 7 \times (-4) \\ = (x+7)(x-4)$$

$$(3) \quad a^2 - 8a + 16 = a^2 - 2 \times 4 \times a + 4^2 \\ = (a-4)^2$$

$$(4) \quad 16 - x^2 = 4^2 - x^2 \\ = (4+x)(4-x)$$