

## 5 1. 多項式の因数分解⑥

$$(1) (a-5)(a^2+5a+25) \quad (2) (2x+3)(4x^2-6x+9) \quad (3) 8(2a+b)(4a^2-2ab+b^2)$$

$$(4) 3(x-3)(x^2+3x+9) \quad (5) x(x-y)(x^2+xy+y^2)$$

$$(6) (2x+1)(4x^2-2x+1)(2x-1)(4x^2+2x+1) \quad (7) (x-y+2)(x^2-2xy+y^2-2x+2y+4)$$

$$(8) 9(x-y)(x^2-xy+y^2)$$

次の式を因数分解せよ。

$$(1) a^3 - 125 = (a-5)(a^2+5a+25)$$

$$(2) 8x^3 + 27 = (2x+3)(4x^2-6x+9)$$

$$(3) 64a^3 + 8b^3 = 8(8a^3 + b^3) \\ = 8(2a+b)(4a^2 - 2ab + b^2)$$

$$(4) 3x^3 - 81 = 3(x^3 - 27) \\ = 3(x-3)(x^2+3x+9)$$

$$(5) x^4 - xy^3 = x(x^3 - y^3) \\ = x(x-y)(x^2+xy+y^2)$$

$$(6) 64x^6 - 1 = (8x^3+1)(8x^3-1) \\ = (2x+1)(4x^2-2x+1)(2x-1)(4x^2+2x+1)$$

$$(7) (x-y)^3 + 8 = \{(x-y)+2\}\{(x-y)^2 - 2(x-y) + 4\} \\ = (x-y+2)(x^2-2xy+y^2-2x+2y+4)$$

$$(8) (x-2y)^3 - (y-2x)^3 = (x-2y)^3 - (y-2x)^3 \\ = \{(x-2y) - (y-2x)\} \times \{(x-2y)^2 + (x-2y)(y-2x) + (y-2x)^2\} \\ = (3x-3y) \times (3x^2 - 3xy + 3y^2) \\ = 9(x-y)(x^2 - xy + y^2)$$