

7. 多項式の因数分解④

$$(1) (2x+1)(4x^2-2x+1) \quad (2) (4x-3y)(16x^2+12xy+9y^2) \quad (3) (2x+2y-1)(2x-2y+1)$$
$$(4) (x+y-5)(x+y+3) \quad (5) (x-2)(x+1)(x-3)(x+2) \quad (6) (x+3)(x-1)(x+1)^2$$
$$(7) 2(a+2)(a-2)(a+3)(a-3) \quad (8) (x+2)(x^2-2x+4)(x-1)(x^2+x+1)$$

次の式を因数分解せよ。

$$(1) 8x^3+1=(2x)^3+1^3$$

$$=(2x+1)(4x^2-2x+1)$$

$$(2) 64x^3-27y^3=(4x)^3-(3y)^3$$

$$=(4x-3y)(16x^2+12xy+9y^2)$$

$$(3) 4x^2-4y^2+4y-1=(2x)^2-(4y^2-4y+1)$$

$$=(2x)^2-(2y-1)^2$$

$$=\{2x+(2y-1)\}\{2x-(2y-1)\}$$

$$=(2x+2y-1)(2x-2y+1)$$

$$(4) (x+y+1)(x+y-3)-12=(x+y)^2-2(x+y)-15$$

$$=(x+y-5)(x+y+3)$$

$$(5) (x^2-x)^2-8(x^2-x)+12=(x^2-x-2)(x^2-x-6)$$

$$=(x-2)(x+1)(x-3)(x+2)$$

$$(6) (x^2+2x)(x^2+2x-2)-3=(x^2+2x)^2-2(x^2+2x)-3$$

$$=(x^2+2x-3)(x^2+2x+1)$$

$$=(x+3)(x-1)(x+1)^2$$

$$(7) 2a^4-26a^2+72=2(a^4-13a^2+36)$$

$$=2(a^2-4)(a^2-9)$$

$$=2(a+2)(a-2)(a+3)(a-3)$$

$$(8) x^6+7x^3-8=(x^3+8)(x^3-1)$$

$$=(x+2)(x^2-2x+4)(x-1)(x^2+x+1)$$