

2013年薬学部(前期)第1問



1 次を因数分解しなさい。

$$(1) x^3 - 3x^2 + 3x - 9 = \boxed{\text{ア}} (x-3)(x^2+3)$$

$$(2) x^8 - y^8 = \boxed{\text{イ}} (x-y)(x+y)(x^2+y^2)(x^4+y^4)$$

$$(3) x^4 + 64 = \boxed{\text{ウ}} (x^2+4x+8)(x^2-4x+8)$$

$$(4) x^2 + y^2 - 2xy - 9z^2 = \boxed{\text{エ}} (x-y+3z)(x-y-3z)$$

$$(1) (\text{与式}) = x^2(x-3) + 3(x-3)$$

$$= \underline{(x-3)(x^2+3)} //$$

$$(2) (\text{与式}) = (x^4)^2 - (y^4)^2$$

$$= (x^4 - y^4)(x^4 + y^4)$$

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

$$= \underline{(x-y)(x+y)(x^2+y^2)(x^4+y^4)} //$$

$$(3) (\text{与式}) = x^4 + 16x^2 + 64 - 16x^2$$

$$= (x^2 + 8)^2 - (4x)^2$$

$$= \underline{(x^2+4x+8)(x^2-4x+8)} //$$

$$(4) (\text{与式}) = (x-y)^2 - (3z)^2$$

$$= \underline{(x-y+3z)(x-y-3z)} //$$