

1. $x^2 + y^2 + 2xy - x - y$ 을 인수분해 하면?

① $(x - y)(x + y + 1)$

② $(x + y)(x - y - 1)$

③ $(x - y)(x - y - 1)$

④ $(x + y)(x + y - 1)$

⑤ $(x + y)(x + y + 1)$

해설

$$\begin{aligned} & x^2 + y^2 + 2xy - x - y \\ &= (x + y)^2 - (x + y) = (x + y)(x + y - 1) \end{aligned}$$

2. $(x^2 + x)(x^2 + x + 1) - 6$ 을 인수분해하면?

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

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

⑤ $(x + 1)(x - 2)(x^2 - x + 3)$

해설

$x^2 + x = X$ 라 하자.

$$(\text{준식}) = X(X + 1) - 6$$

$$= X^2 + X - 6$$

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

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

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

3. 다음 중 $(x+y)^3 - 8y^3$ 의 인수인 것은?

- ① $x^2 - 2xy - 4y^2$ ② $x^2 - 2xy + 4y^2$ ③ $x^2 + 2xy + 4y^2$
④ $x^2 - 4xy - 7y^2$ ⑤ $x^2 + 4xy + 7y^2$

해설

$$\begin{aligned}(\text{준식}) &= (x+y)^3 - (2y)^3 \\&= \{(x+y) - 2y\} \{(x+y)^2 + (x+y)2y + (2y)^2\} \\&= (x-y)(x^2 + 2xy + y^2 + 2xy + 2y^2 + 4y^2) \\&= (x-y)(x^2 + 4xy + 7y^2)\end{aligned}$$

4. $x^4 - 3x^2 + 1$ 을 인수분해 하면?

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

해설

$$\begin{aligned}x^4 - 3x^2 + 1 &= x^4 - 2x^2 + 1 - x^2 \\&= (x^2 - 1)^2 - x^2 \\&= (x^2 + x - 1)(x^2 - x - 1)\end{aligned}$$