



#### Factorisation of Algebraic Expressions Ex 5.1 Q4

**Answer :**

The given expression to be factorized is

$$a^2x^2 + (ax^2 + 1)x + a$$

Simplify the middle term. That is

$$a^2x^2 + (ax^2 + 1)x + a$$

$$= a^2x^2 + ax^3 + x + a$$

Take common  $ax^2$  from the first two terms and 1 from the last two terms. That is

$$a^2x^2 + (ax^2 + 1)x + a$$

$$= a^2x^2 + ax^3 + x + a$$

$$= ax^2(a + x) + 1(x + a)$$

$$= ax^2(x + a) + 1(x + a)$$

Finally, take common  $(x + a)$  from the two terms. That is

$$a^2x^2 + (ax^2 + 1)x + a = ax^2(x + a) + 1(x + a)$$

$$= (x + a)(ax^2 + 1)$$

We cannot further factorize the expression.

So, the required factorization of  $a^2x^2 + (ax^2 + 1)x + a$  is  $(x + a)(ax^2 + 1)$ .

#### Factorisation of Algebraic Expressions Ex 5.1 Q5

**Answer :**

The given expression to be factorized is

$$x^2 + y - xy - x$$

Rearrange the given expression as

$$x^2 - xy - x + y$$

Take common  $x$  from the first two terms and  $-1$  from the last two terms. That is

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

Finally, take common  $(x - y)$  from the two terms. That is

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

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

We cannot further factorize the expression.

So, the required factorization of  $x^2 + y - xy - x$  is  $(x - y)(x - 1)$ .

#### Factorisation of Algebraic Expressions Ex 5.1 Q6

**Answer :**

The given expression to be factorized is

$$x^3 - 2x^2y + 3xy^2 - 6y^3$$

Take common  $x^2$  from the first two terms and  $3y^2$  from the last two terms. That is

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

Finally, take common  $(x - 2y)$  from the two terms. That is

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

We cannot further factorize the expression.

So, the required factorization of  $x^3 - 2x^2y + 3xy^2 - 6y^3$  is  $(x - 2y)(x^2 + 3y^2)$ .

