



Factorisation of Algebraic Expressions Ex 5.2 Q1

**Answer :**

The given expression to be factorized is

$$p^3 + 27$$

This can be written in the form

$$p^3 + 27 = (p)^3 + (3)^3$$

Recall the formula for sum of two cubes

$$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$$

Using the above formula, we have

$$\begin{aligned} p^3 + 27 &= (p + 3)\{(p)^2 - p \cdot 3 + (3)^2\} \\ &= (p + 3)(p^2 - 3p + 9) \end{aligned}$$

We cannot further factorize the expression.

So, the required factorization of  $p^3 + 27$  is  $\boxed{(p + 3)(p^2 - 3p + 9)}$ .

Factorisation of Algebraic Expressions Ex 5.2 Q2

**Answer :**

The given expression to be factorized is

$$y^3 + 125$$

This can be written in the form

$$y^3 + 125 = (y)^3 + (5)^3$$

Recall the formula for sum of two cubes

$$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$$

Using the above formula, we have

$$\begin{aligned} y^3 + 125 &= (y + 5)\{(y)^2 - y \cdot 5 + (5)^2\} \\ &= (y + 5)(y^2 - 5y + 25) \end{aligned}$$

We cannot further factorize the expression.

So, the required factorization of  $y^3 + 125$  is  $\boxed{(y + 5)(y^2 - 5y + 25)}$ .

Factorisation of Algebraic Expressions Ex 5.2 Q3

**Answer :**

The given expression to be factorized is

$$1 - 27a^3$$

This can be written in the form

$$1 - 27a^3 = (1)^3 - (3a)^3$$

Recall the formula for difference of two cubes

$$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$

Using the above formula, we have

$$\begin{aligned} 1 - 27a^3 &= (1 - 3a)\{(1)^2 + 1 \cdot 3a + (3a)^2\} \\ &= (1 - 3a)(1 + 3a + 9a^2) \end{aligned}$$

We cannot further factorize the expression.

So, the required factorization of  $1 - 27a^3$  is  $\boxed{(1 - 3a)(1 + 3a + 9a^2)}$ .

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