Factorisation of Algebraic Expressions Ex 5.2 Q7

Answer :

The given expression to be factorized is

$10x^4y-10xy^4$

Take common $10xy$ from the two terms,. Then we have

$10x^4y-10xy^4=10xy(x^3-y^3)$

This can be written in the form

$10x^4y-10xy^4=10xy\{(x)^3-(y)^3\}$

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

$10x^4y-10xy^4=10xy\{(x-y)(x^2+xy+y^2)\}$

$=10xy(x-y)(x^2+xy+y^2)$

We cannot further factorize the expression.

So, the required factorization of $10x^4y-10xy^4$ is $\boxed{10xy(x-y)(x^2+xy+y^2)}$.

Factorisation of Algebraic Expressions Ex 5.2 Q8

Answer :

The given expression to be factorized is

$54x^6y+2x^3y^4$

Take common $2x^3y$ from the two terms,. Then we have

$54x^6y+2x^3y^4=2x^3y(27x^3+y^3)$

This can be written in the form

$54x^6y+2x^3y^4=2x^3y\{(3x)^3+(y)^3\}$

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

$54x^6y+2x^3y^4=2x^3y\{(3x)^3+(y)^3\}$

$=2x^3y(3x+y)\{(3x)^2-3x.y+(y)^2\}$

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

We cannot further factorize the expression.

So, the required factorization of $54x^6y+2x^3y^4$ is $\boxed{2x^3y(3x+y)(9x^2-3xy+y^2)}$.

Factorisation of Algebraic Expressions Ex 5.2 Q9

Answer :

The given expression to be factorized is

$32a^3+108b^3$

Take common 4 from the two terms,. Then we have

$32a^3+108b^3=4(8a^3+27b^3)$

This can be written in the form

$32a^3+108b^3=4\{(2a)^3+(3b)^3\}$

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

$$\begin{aligned}32a^3+108b^3&=4\{(2a)^3+(3b)^3\}\\&=4(2a+3b)\{(2a)^2-2a.3b+(3b)^2\}\\&=4(2a+3b)(4a^2-6ab+9b^2)\end{aligned}$$

We cannot further factorize the expression.

So, the required factorization of $32a^3+108b^3$ is $\boxed{4(2a+3b)(4a^2-6ab+9b^2)}$.

********** END **********