

Factorisation of Algebraic Expressions Ex 5.1 Q22

Answer

The given expression to be factorized is

$$x^2 - 2\sqrt{2}x - 30$$

This can be written in the form

$$x^{2} - 2\sqrt{2}x - 30 = x^{2} - (5\sqrt{2} - 3\sqrt{2})x - 30$$
$$= x^{2} - 5\sqrt{2}x + 3\sqrt{2}x - 30$$

Take common x from the first two terms and $3\sqrt{2}$ from the last two terms,

$$x^{2}-2\sqrt{2}x-30=x(x-5\sqrt{2})+3\sqrt{2}(x-5\sqrt{2})$$

Finally take common $(x-5\sqrt{2})$ from the above expression,

$$x^2 - 2\sqrt{2}x - 30 = (x - 5\sqrt{2})(x + 3\sqrt{2})$$

We cannot further factorize the expression.

So, the required factorization of
$$x^2 - 2\sqrt{2}x - 30^{15} \left((x - 5\sqrt{2})(x + 3\sqrt{2})\right)$$

Factorisation of Algebraic Expressions Ex 5.1 Q23

Answer:

The given expression to be factorized is

$$x^2 - \sqrt{3}x - 6$$

This can be written in the form

$$x^{2} - \sqrt{3}x - 6 = x^{2} - (2\sqrt{3} - \sqrt{3})x - 6$$
$$= x^{2} - 2\sqrt{3}x + \sqrt{3}x - 6$$

Take common x from the first two terms and $\sqrt{3}$ from the last two terms. Then we have

$$x^{2} - \sqrt{3}x - 6 = x(x - 2\sqrt{3}) + \sqrt{3}(x - 2\sqrt{3})$$

Finally take common $(x-2\sqrt{3})$ from the above expression. Then we have

$$x^2 - \sqrt{3}x - 6 = (x - 2\sqrt{3})(x + \sqrt{3})$$

We cannot further factorize the expression.

So, the required factorization of $x^2 - \sqrt{3}x - 6$ is $(x - 2\sqrt{3})(x + \sqrt{3})$

Factorisation of Algebraic Expressions Ex 5.1 Q24 Answer:

The given expression to be factorized is

$$x^2 + 5\sqrt{5}x + 30$$

This can be written in the form

$$x^{2} + 5\sqrt{5}x + 30 = x^{2} + (3\sqrt{5} + 2\sqrt{5})x + 30$$
$$= x^{2} + 3\sqrt{5}x + 2\sqrt{5}x + 30$$

Take common x from the first two terms and $2\sqrt{5}$ from the last two terms. Then we have

$$x^{2} + 5\sqrt{5}x + 30 = x(x + 3\sqrt{5}) + 2\sqrt{5}(x + 3\sqrt{5})$$

Finally take common $(x+3\sqrt{5})$ from the above expression,

$$x^2 + 5\sqrt{5}x + 30 = (x + 3\sqrt{5})(x + 2\sqrt{5})$$

We cannot further factorize the expression.

So, the required factorization of $x^2 + 5\sqrt{5}x + 30$ is $(x + 3\sqrt{5})(x + 2\sqrt{5})$

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