Factorisation of Algebraic Expressions Ex 5.1 Q25

Answer:

The given expression to be factorized is

$$x^2 + 2\sqrt{3}x - 24$$

This can be written in the form

$$x^2 + 2\sqrt{3}x - 24 = x^2 + (4\sqrt{3} - 2\sqrt{3})x - 24$$
$$= x^2 + 4\sqrt{3}x - 2\sqrt{3}x - 24$$

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

$$x^2 + 2\sqrt{3}x - 24 = x(x + 4\sqrt{3}) - 2\sqrt{3}(x + 4\sqrt{3})$$

Finally take common $(x + 4\sqrt{3})$ from the above expression,

$$x^2 + 2\sqrt{3}x - 24 = (x + 4\sqrt{3})(x - 2\sqrt{3})$$

We cannot further factorize the expression.

So, the required factorization of $x^2 + 2\sqrt{3}x - 24$ is $\boxed{(x + 4\sqrt{3})(x - 2\sqrt{3})}$.

Factorisation of Algebraic Expressions Ex 5.1 Q26

Answer:

The given expression to be factorized is

$$2x^2 - \frac{5}{6}x + \frac{1}{12}$$

This can be written in the form

$$2x^2 - \frac{5}{6}x + \frac{1}{12} = 2x^2 - \left(\frac{3}{6} + \frac{2}{6}\right)x + \frac{1}{12}$$
$$= 2x^2 - \frac{3}{6}x - \frac{2}{6}x + \frac{1}{12}$$
$$= 2x^2 - \frac{1}{2}x - \frac{1}{3}x + \frac{1}{12}$$

Take common x from the first two terms and $-\frac{1}{6}$ from the last two terms,

$$2x^2 - \frac{5}{6}x + \frac{1}{12} = x\left(2x - \frac{1}{2}\right) - \frac{1}{6}\left(2x - \frac{1}{2}\right)$$

Finally take common $\left(2x - \frac{1}{2}\right)$ from the above expression,

$$2x^2 - \frac{5}{6}x + \frac{1}{12} = \left(2x - \frac{1}{2}\right)\left(x - \frac{1}{6}\right)$$

We cannot further factorize the expression.

So, the required factorization of $2x^2 - \frac{5}{6}x + \frac{1}{12}$ is $\boxed{\left(2x - \frac{1}{2}\right)\left(x - \frac{1}{6}\right)}$.

Factorisation of Algebraic Expressions Ex 5.1 Q27

Answer :

The given expression to be factorized is

$$x^2 + \frac{12}{35}x + \frac{1}{35}$$

This can be written in the form

$$x^2 + \frac{12}{35}x + \frac{1}{35} = x^2 + \left(\frac{1}{7} + \frac{1}{5}\right)x + \frac{1}{35}$$

$$= x^2 + \frac{1}{7}x + \frac{1}{5}x + \frac{1}{35}$$

Take common x from the first two terms and $\frac{1}{5}$ from the last two terms,

$$x^2 + \frac{12}{35}x + \frac{1}{35} = x\left(x + \frac{1}{7}\right) + \frac{1}{5}\left(x + \frac{1}{7}\right)$$

Finally take common $\left(x + \frac{1}{7}\right)$ from the above expression,

$$x^2 + \frac{12}{35}x + \frac{1}{35} = \left(x + \frac{1}{7}\right)\left(x + \frac{1}{5}\right)$$

We cannot further factorize the expression.

So, the required factorization of $x^2 + \frac{12}{35}x + \frac{1}{35}$ is $\boxed{\left(x + \frac{1}{7}\right)\left(x + \frac{1}{5}\right)}$.

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