

Factorizations Ex 7.7 Q11

Answer:

To factorise $y^2 + 5y - 36$, we will find two numbers p and q such that p + q = 5 and pq = -36.

Now,

$$9 + (-4) = 5$$

and

$$9 \times (-4) = -36$$

Splitting the middle term 5y in the given quadratic as -4y + 9y, we get:

$$y^{2} + 5y - 36 = y^{2} - 4y + 9y - 36$$

$$= (y^{2} - 4y) + (9y - 36)$$

$$= y(y - 4) + 9(y - 4)$$

$$= (y + 9)(y - 4)$$

Factorizations Ex 7.7 Q12

Answer:

$$(a^{2} - 5a)^{2} - 36$$

$$= (a^{2} - 5a)^{2} - 6^{2}$$

$$= [(a^{2} - 5a) - 6][(a^{2} - 5a) + 6]$$

$$= (a^{2} - 5a - 6)(a^{2} - 5a + 6)$$

In order to factorise a^2-5a-6 , we will find two numbers p and q such that p+q=-5 and pq=-6

Now,

$$(-6)+1=-5$$

and

$$\left(-6\right) \times 1 = -6$$

Splitting the middle term $\,-\,5$ in the given quadratic as $\,-\,6a+a,$ we get :

$$a^{2} - 5a - 6 = a^{2} - 6a + a - 6$$

$$= \left(a^{2} - 6a\right) + \left(a - 6\right)$$

$$= a\left(a - 6\right) + \left(a - 6\right)$$

$$= \left(a + 1\right)\left(a - 6\right)$$

Now,

In order to factorise $a^2 - 5a + 6$, we will find two numbers p and q such that p + q = -5 and pq = 6

Clearly,

$$\left(-2\right) + \left(-3\right) = -5$$

ane

$$\left(-2\right) \times \left(-3\right) = 6$$

Splitting the middle term $\,-\,5$ in the given quadratic as $\,-\,2a-3a,$ we get:

$$a^{2} - 5a + 6 = a^{2} - 2a - 3a + 6$$

$$= (a^{2} - 2a) - (3a - 6)$$

$$= a(a - 2) - 3(a - 2)$$

$$= (a - 3)(a - 2)$$

$$\therefore (a^{2} - 5a - 6)(a^{2} - 5a + 6) = (a - 6)(a + 1)(a - 3)(a - 2)$$

$$= (a + 1)(a - 2)(a - 3)(a - 6)$$

Factorizations Ex 7.7 Q13

Answer:

$$\begin{array}{l} (a+7) \left(a-10\right) + 16 \\ = a^2 - 10a + 7a - 70 + 16 \\ = a^2 - 3a - 54 \\ To \ factorise \ a^2 - 3a - 54 \ , \ we \ will \ find \ two \ numbers \ p \ and \ q \ such \ that \ p+q = -3 \ and \ pq = -54 . \\ Now, \\ 6+(-9) = -3 \\ and \\ 6\times(-9) = -54 \\ Splitting \ the \ middle \ term \ -3a \ in \ the \ given \ quadratic \ as \ -9a + 6a, \ we \ get: \\ a^2 - 3a - 54 = a^2 - 9a + 6a - 54 \\ = \left(a^2 - 9a\right) + \left(6a - 54\right) \\ = a(a-9) + 6(a-9) \\ = \left(a+6\right)\left(a-9\right) \end{array}$$

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