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 :

$$\begin{aligned} y^2+5y-36 &= y^2-4y+9y-36 \\ &= (y^2-4y)+(9y-36) \\ &= y(y-4)+9(y-4) \\ &= (y+9)(y-4) \end{aligned}$$

Factorizations Ex 7.7 Q12

Answer :

$$\begin{aligned} &(a^2-5a)^2-36 \\ &=(a^2-5a)^2-6^2 \\ &=\left[(a^2-5a)-6\right]\left[(a^2-5a)+6\right] \\ &=(a^2-5a-6)(a^2-5a+6) \end{aligned}$$

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

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

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

$$\begin{aligned} a^2-5a-6 &= a^2-6a+a-6 \\ &= (a^2-6a)+(a-6) \\ &= a(a-6)+(a-6) \\ &= (a+1)(a-6) \end{aligned}$$

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,

$(-2)+(-3)=-5$

and

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

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

$$\begin{aligned} a^2-5a+6 &= a^2-2a-3a+6 \\ &= (a^2-2a)-(3a-6) \\ &= a(a-2)-3(a-2) \\ &= (a-3)(a-2) \end{aligned}$$

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

Factorizations Ex 7.7 Q13

Answer :

$(a+7)(a-10)+16$

$=a^2-10a+7a-70+16$

$=a^2-3a-54$

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 :*

$$\begin{aligned} a^2-3a-54 &= a^2-9a+6a-54 \\ &= (a^2-9a)+(6a-54) \\ &= a(a-9)+6(a-9) \\ &= (a+6)(a-9) \end{aligned}$$

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