Factorizations Ex 7.7 Q1

Answer :

To factorise $x^2+12x-45$, we will find two numbers p and q such that $p+q=12$ and $pq=-45$.

Now,

$15+(-3)=12$

and

$15\times(-3)=-45$

Splitting the middle term $12x$ in the given quadratic as $-3x+15x$, we get :

$$\begin{aligned} x^2+12x-45 &= x^2-3x+15x-45 \\ &= (x^2-3x)+(15x-45) \\ &= x(x-3)+15(x-3) \\ &= (x+15)(x-3) \end{aligned}$$

Factorizations Ex 7.7 Q2

Answer :

We have :

$40+3x-x^2$

$\Rightarrow -(x^2-3x-40)$

To factorise $(x^2-3x-40)$, we will find two numbers p and q such that $p+q=-3$ and $pq=-40$.

Now,

$5+(-8)=-3$

and

$5\times(-8)=-40$

Splitting the middle term $-3x$ in the given quadratic as $5x-8x$, we get :

$$\begin{aligned} 40+3x-x^2 &= -(x^2-3x-40) \\ &= -(x^2+5x-8x-40) \\ &= -[(x^2+5x)-(8x+40)] \\ &= -[x(x+5)-8(x+5)] \\ &= -(x-8)(x+5) \\ &= (x+5)(-x+8) \end{aligned}$$

Factorizations Ex 7.7 Q3

Answer :

To factorise $a^2+3a-88$, we will find two numbers p and q such that $p+q=3$ and $pq=-88$.

Now,

$11+(-8)=3$

and

$11\times(-8)=-88$

Splitting the middle term $3a$ in the given quadratic as $11a-8a$, we get :

$$\begin{aligned} a^2+3a-88 &= a^2+11a-8a-88 \\ &= (a^2+11a)-(8a+88) \\ &= a(a+11)-8(a+11) \\ &= (a-8)(a+11) \end{aligned}$$

Factorizations Ex 7.7 Q4

Answer :

To factorise $a^2 - 14a - 51$, we will find two numbers p and q such that $p + q = -14$ and $pq = -51$.

Now,

$3 + (-17) = -14$

and

$3 \times (-17) = -51$

Splitting the middle term $-14a$ in the given quadratic as $3a - 17a$, we get :

$$\begin{aligned} a^2 - 14a - 51 &= a^2 + 3a - 17a - 51 \\ &= (a^2 + 3a) - (17a + 51) \\ &= a(a + 3) - 17(a + 3) \\ &= (a - 17)(a + 3) \end{aligned}$$

Factorizations Ex 7.7 Q5

Answer :

To factorise $x^2 + 14x + 45$, we will find two numbers p and q such that $p + q = 14$ and $pq = 45$.

Now,

$9 + 5 = 14$

and

$9 \times 5 = 45$

Splitting the middle term $14x$ in the given quadratic as $9x + 5x$, we get :

$$\begin{aligned} x^2 + 14x + 45 &= x^2 + 9x + 5x + 45 \\ &= (x^2 + 9x) + (5x + 45) \\ &= x(x + 9) + 5(x + 9) \\ &= (x + 5)(x + 9) \end{aligned}$$

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