Factorizations Ex 7.8 Q6

Answer:

The given expression is $28 - 31x - 5x^2$. (Coefficient of $x^2 = -5$, coefficient of $x = -31$ and constant term $= 28$)

We will split the coefficient of x into two parts such that their sum is -31 and their product equals the product of the coefficient of x^2 and the constant term, i.e., $(-5) \times (28) = -140$.

Now,

$(-35) + 4 = -31$

and

$(-35) \times 4 = -140$

Replacing the middle term $-31x$ by $-35x + 4x$, we have:

$$-5x^2 - 31x + 28 = -5x^2 - 35x + 4x + 28$$
$$= (-5x^2 - 35x) + (4x + 28)$$
$$= -5x(x + 7) + 4(x + 7)$$
$$= (4 - 5x)(x + 7)$$

Factorizations Ex 7.8 Q7

Answer:

The given expression is $3 + 23y - 8y^2$. (Coefficient of $y^2 = -8$, coefficient of $y = 23$ and constant term $= 3$)

We will split the coefficient of y into two parts such that their sum is 23 and their product equals the product of the coefficient of y^2 and the constant term, i.e., $(-8) \times 3 = -24$.

Now,

$(-1) + 24 = 23$

and

$(-1) \times 24 = -24$

Replacing the middle term $23y$ by $-y + 24y$, we have:

$3 + 23y - 8y^2$
$= -8y^2 + 23y + 3$
$= -8y^2 - y + 24y + 3$
$= (-8y^2 - y) + (24y + 3)$
$= -y(8y + 1) + 3(8y + 1)$
$= (3 - y)(8y + 1)$

Factorizations Ex 7.8 Q8

Answer:

The given expression is $11x^2 - 54x + 63$. (Coefficient of $x^2 = 11$, coefficient of $x = -54$ and constant term $= 63$)

We will split the coefficient of x into two parts such that their sum is -54 and their product equals the product of the coefficient of x^2 and the constant term, i.e., $11 \times 63 = 693$.

Now,

$(-33) + (-21) = -54$

and

$(-33) \times (-21) = 693$

Replacing the middle term $-54x$ by $-33x - 21x$, we have:

$11x^2 - 54x + 63 = 11x^2 - 33x - 21x + 63$
$$= (11x^2 - 33x) + (-21x + 63)$$
$$= 11x(x - 3) - 21(x - 3)$$
$$= (11x - 21)(x - 3)$$

Factorizations Ex 7.8 Q9

Answer:

The given expression is $7x - 6x^2 + 20$.   (Coefficient of $x^2 = -6$, coefficient of $x = 7$ and constant term $= 20$)

We will split the coefficient of x into two parts such that their sum is 7 and their product equals the product of the coefficient of x^2 and the constant term, i.e., $(-6) \times 20 = -120$.

Now,

$15 + (-8) = 7$

and

$15 \times (-8) = -120$

Replacing the middle term 7x by $15x - 8x$, we get :

$7x - 6x^2 + 20$

$= -6x^2 + 7x + 20$

$= -6x^2 + 15x - 8x + 20$

$= (-6x^2 + 15x) + (-8x + 20)$

$= 3x(-2x + 5) + 4(-2x + 5)$

$= (3x + 4)(-2x + 5)$

Factorizations Ex 7.8 Q10

Answer:

The given expression is $3x^2 + 22x + 35$.

(Coefficient of $x^2 = 3$, coefficient of $x = 22$ and constant term $= 35$)

We will split the coefficient of x into two parts such that their sum is 22 and their product equals the product of the coefficient of x^2 and the constant term, i.e., $3 \times 35 = 105$.

Now,

$15 + 7 = 22$

and

$15 \times 7 = 105$

Replacing the middle term 22x by $15x + 7x$, we get :

$3x^2 + 22x + 35 = 3x^2 + 15x + 7x + 35$

$= (3x^2 + 15x) + (7x + 35)$

$= 3x(x + 5) + 7(x + 5)$

$= (3x + 7)(x + 5)$

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