



### 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 :

$$\begin{aligned} -5x^2 - 31x + 28 &= -5x^2 - 35x + 4x + 28 \\ &= (-5x^2 - 35x) + (4x + 28) \\ &= -5x(x + 7) + 4(x + 7) \\ &= (4 - 5x)(x + 7) \end{aligned}$$

### 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 :

$$\begin{aligned} 3 + 23y - 8y^2 &= -8y^2 + 23y + 3 \\ &= -8y^2 - y + 24y + 3 \\ &= (-8y^2 - y) + (24y + 3) \\ &= -y(8y + 1) + 3(8y + 1) \\ &= (3 - y)(8y + 1) \end{aligned}$$

### 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 :

$$\begin{aligned} 11x^2 - 54x + 63 &= 11x^2 - 33x - 21x + 63 \\ &= (11x^2 - 33x) + (-21x + 63) \\ &= 11x(x - 3) - 21(x - 3) \\ &= (11x - 21)(x - 3) \end{aligned}$$

### 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 :

$$\begin{aligned} 7x - 6x^2 + 20 &= -6x^2 + 7x + 20 \\ &= -6x^2 + 15x - 8x + 20 \\ &= (-6x^2 + 15x) + (-8x + 20) \\ &= 3x(-2x + 5) + 4(-2x + 5) \\ &= (3x + 4)(-2x + 5) \end{aligned}$$

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 :

$$\begin{aligned} 3x^2 + 22x + 35 &= 3x^2 + 15x + 7x + 35 \\ &= (3x^2 + 15x) + (7x + 35) \\ &= 3x(x + 5) + 7(x + 5) \\ &= (3x + 7)(x + 5) \end{aligned}$$

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