



Exercise 7D

$$\text{Sum} = 1$$

$$\text{Product} = -72$$

Clearly, the numbers are 9 and -8 .

$$\begin{aligned} y^2 + y - 72 &= y^2 + 9y - 8y - 72 \\ &= y(y + 9) - 8(y + 9) \\ &= (y + 9)(y - 8) \end{aligned}$$

Q21

Answer :

The given expression is $a^2 + 6a - 91$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = 6$$

$$\text{Product} = -91$$

Clearly, the numbers are 13 and -7 .

$$\begin{aligned} a^2 + 6a - 91 &= a^2 + 13a - 7a - 91 \\ &= a(a + 13) - 7(a + 13) \\ &= (a + 13)(a - 7) \end{aligned}$$

Q22

Answer :

The given expression is $p^2 - 4p - 77$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = -4$$

$$\text{Product} = -77$$

Clearly, the numbers are -11 and 7 .

$$\begin{aligned} p^2 - 4p - 77 &= p^2 - 11p + 7p - 77 \\ &= p(p - 11) + 7(p - 11) \\ &= (p - 11)(p + 7) \end{aligned}$$

Q23

Answer :

The given expression is $x^2 - 7x - 30$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = -7$$

$$\text{Product} = -30$$

Clearly, the numbers are -10 and 3 .

$$\begin{aligned}x^2 - 7x - 30 &= x^2 - 10x + 3x - 30 \\&= x(x - 10) + 3(x - 10) \\&= (x - 10)(x + 3)\end{aligned}$$

Q24

Answer :

The given expression is $x^2 - 11x - 42$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = -11$$

$$\text{Product} = -42$$

Clearly, the numbers are -14 and 3 .

$$\begin{aligned}x^2 - 11x - 42 &= x^2 - 14x + 3x - 42 \\&= x(x - 14) + 3(x - 14) \\&= (x - 14)(x + 3)\end{aligned}$$

Q25

Answer :

The given expression is $x^2 - 5x - 24$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = -5$$

$$\text{Product} = -24$$

Clearly, the numbers are -8 and 3 .

$$\begin{aligned}
 x^2 - 5x - 24 &= x^2 - 8x + 3x - 24 \\
 &= x(x - 8) + 3(x - 8) \\
 &= (x - 8)(x + 3)
 \end{aligned}$$

Q26

Answer :

The given expression is $y^2 - 6y - 135$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = -6$$

$$\text{Product} = -135$$

Clearly, the numbers are -15 and 9 .

$$\begin{aligned}
 y^2 - 6y - 135 &= y^2 - 15y + 9y - 135 \\
 &= y(y - 15) + 9(y - 15) \\
 &= (y - 15)(y + 9)
 \end{aligned}$$

Q27

Answer :

The given expression is $z^2 - 12z - 45$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = -12$$

$$\text{Product} = -45$$

Clearly, the numbers are -15 and 3 .

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

Q28

Answer :

The given expression is $x^2 - 4x - 12$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = -4$$

$$\text{Product} = -12$$

Clearly, the numbers are -6 and 2 .

$$\begin{aligned}
 x^2 - 4x - 12 &= x^2 - 6x + 2x - 12 \\
 &= x(x - 6) + 2(x - 6) \\
 &= (x - 6)(x + 2)
 \end{aligned}$$

Q29

Answer :

The given expression is $3x^2 + 10x + 8$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = 10$$

$$\text{Product} = 3 \times 8 = 24$$

Clearly, the numbers are 6 and 4 .

$$\begin{aligned}
 3x^2 + 10x + 8 &= 3x^2 + 10x + 8 \\
 &= 3x^2 + 6x + 4x + 8 \\
 &= 3x(x + 2) + 4(x + 2) \\
 &= (x + 2)(3x + 4)
 \end{aligned}$$

Q30

Answer :

The given expression is $3y^2 + 14y + 8$

Find two numbers that follow the conditions given below :

$$\text{Sum} = 14$$

$$\text{Product} = 24$$

Clearly, the numbers are 12 and 2.

$$\begin{aligned} 3y^2 + 14y + 8 &= 3y^2 + 12y + 2y + 8 \\ &= 3y(y + 4) + 2(y + 4) \\ &= (3y + 2)(y + 4) \end{aligned}$$

Q31

Answer :

The given expression is $3z^2 - 10z + 8$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = -10$$

$$\text{Product} = 3 \times 8 = 24$$

Clearly, the numbers are -6 and -4.

$$\begin{aligned} 3z^2 - 10z + 8 &= 3z^2 - 6z - 4z + 8 \\ &= 3z(z - 2) - 4(z - 2) \\ &= (3z - 4)(z - 2) \end{aligned}$$

Q32

Answer :

The given expression is $2x^2 + x - 45$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = 1$$

$$\text{Product} = -45 \times 2 = -90$$

Clearly, the numbers are 10 and -9.

$$2x^2 + x - 45 = 2x^2 + 10x - 9x - 45$$

***** END *****