



Exercise 7D

Q1

Answer :

The given expression is $x^2 + 5x + 6$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = 5$$

$$\text{Product} = 6$$

Clearly, the numbers are 3 and 2.

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

Q2

Answer :

The given expression is $y^2 + 10y + 24$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = 10$$

$$\text{Product} = 24$$

Clearly, the numbers are 6 and 4.

$$\begin{aligned}y^2 + 10y + 24 &= y^2 + 6y + 4y + 24 \\&= y(y+6) + 4(y+6) \\&= (y+6)(y+4)\end{aligned}$$

Q3

Answer :

The given expression is $z^2 + 12z + 27$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = 12$$

$$\text{Product} = 27$$

Clearly, the numbers are 9 and 3.

$$\begin{aligned}
 z^2 + 12z + 27 &= z^2 + 9z + 3z + 27 \\
 &= z(z + 9) + 3(z + 9) \\
 &= (z + 9)(z + 3)
 \end{aligned}$$

Q4

Answer :

The given expression is $p^2 + 6p + 8$.

Find two numbers that follow the conditions given below :

Sum = 6

Product = 8

Clearly, the numbers are 4 and 2.

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

Q5

Answer :

The given expression is $x^2 + 15x + 56$.

Find two numbers that follow the conditions given below :

Sum = 15

Product = 56

Clearly, the numbers are 8 and 7.

$$\begin{aligned}
 x^2 + 15x + 56 &= x^2 + 8x + 7x + 56 \\
 &= x(x + 8) + 7(x + 8) \\
 &= (x + 8)(x + 7)
 \end{aligned}$$

Q6

Answer :

The given expression is $y^2 + 19y + 60$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = 19$$

$$\text{Product} = 60$$

Clearly, the numbers are 15 and 4.

$$\begin{aligned} y^2 + 19y + 60 &= y^2 + 15y + 4y + 60 \\ &= y(y + 15) + 4(y + 15) \\ &= (y + 15)(y + 4) \end{aligned}$$

Q7

Answer :

The given expression is $x^2 + 13x + 40$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = 13$$

$$\text{Product} = 40$$

Clearly, the numbers are 8 and 5.

$$\begin{aligned} x^2 + 13x + 40 &= x^2 + 8x + 5x + 40 \\ &= x(x + 8) + 5(x + 8) \\ &= (x + 8)(x + 5) \end{aligned}$$

Q8

Answer :

The given expression is $q^2 - 10q + 21$.

Find two numbers that follow the conditions given below :

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

$$\text{Product} = 21$$

Clearly, the numbers are -7 and -3 .

$$\begin{aligned} q^2 - 10q + 21 &= q^2 - 7q - 3q + 21 \\ &= q(q - 7) - 3(q - 7) \end{aligned}$$

$$= (q - 7) (q - 3)$$

Q9

Answer :

The given expression is $p^2 + 6p - 16$.

Find two numbers that follow the conditions given below :

$$\text{Sum} = 6$$

$$\text{Product} = -16$$

Clearly, the numbers are 8 and -2.

$$\begin{aligned} p^2 + 6p - 16 &= p^2 + 8p - 2p - 16 \\ &= p(p + 8) - 2(p + 8) \\ &= (p + 8) (p - 2) \end{aligned}$$

Q10

Answer :

The given expression is $x^2 - 10x + 24$.

Find two numbers that follow the conditions given below :

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

$$\text{Product} = 24$$

Clearly, the numbers are -6 and -4.

$$\begin{aligned} x^2 - 10x + 24 &= x^2 - 6x - 4x + 24 \\ &= x(x - 6) - 4(x - 6) \\ &= (x - 6) (x - 4) \end{aligned}$$

Q11

Answer :

***** END *****