

SCERT Kerala Class 10 Mathematics /Second Degree Equations – Chapter 4

Extra Questions for Practice / Model Questions.

Answer the following:

1. Find P (1) and P (-1) in the polynomial $P(x) = 4x^2 + 24x + 11$.

Solution:

$$P(1) = 4(1)^2 + 24(1) + 11 = 4 + 24 + 11 = 39$$

$$P(-1) = 4(-1)^2 + 24(-1) + 11 = 4 - 24 + 11 = 15 - 24 = -9$$

2. The square of a term in an arithmetic sequence 1, 4, 7, 10, -----is 100. What is its position?

Solution:

$$\text{Here } f = 1, d = 3$$

$$x_n = dn + (f - d) = 3n + (1 - 3) = 3n - 2$$

$$\text{Given } (3n - 2)^2 = 100$$

$$3n - 2 = 10$$

$$3n = 10 + 2 = 12$$

$$n = \frac{12}{3} = 4$$

3. Find two numbers with sum 8 and product 15?

Solution:

Let the first number be x, second number be 8 - x.

$$\text{Given } x(8 - x) = 15$$

$$8x - x^2 = 15$$

$$x^2 - 8x = -15$$

$$\text{Add 16 on both sides, } x^2 - 8x + 16 = (-15) + 16 = 1$$

$$(x - 4)^2 = 1$$

$$x - 4 = 1 \text{ or } x = 1 + 4 = 5$$

$$\text{Then } 8 - x = 8 - 5 = 3$$

So the two numbers are 5 and 3.

4. The product of a number and 4 more than the same number is 140. What are the numbers?

Solution:

Let the number be x .

$$\text{Given } x(x + 4) = 140$$

$$x^2 + 4x = 140$$

$$\text{Add 4 on both sides, } x^2 + 4x + 4 = 140 + 4 = 144$$

$$(x + 2)^2 = 144$$

$$x + 2 = 12$$

$$x = 12 - 2 = 10, \text{ and the other number is } 4 + x = 4 + 10 = 14$$

The numbers are 10 and 14.

5. When the square of a number is added to the number we get 42. What are the numbers?

Solution:

Let the number be x .

$$\text{Given } x + x^2 = 42$$

$$x^2 + x - 42 = 0$$

$$(x - 6)(x + 7) = 0$$

$$x = 6 \text{ or } x = -7$$

So the numbers are 6 or (-7).
