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

Extra Questions for Practice / Model Questions

Answer the following:

1. If $5(x-10)^2$ = 500, find the value of x?

Solution:

$5(x-10)^2$ = 500

$(x-10)^2 = \frac{500}{5}$ = 100

x – 10 = $\sqrt{100}$ = ± 10

x = 10 + 10 = 20 or x = (-10) + 10 = 0.

2. If x^2+ 2x = 224, then what is x?

Solution:

x^2 + 2x = 224

Add 1 on both sides, we get x^2+ 2x + 1 = 224 + 1 = 225

$(x+1)^2$ = 225

x + 1 = ± 15

x = 15 – 1 = 14 or x = (-15) – 1 = -16

3. If x^2+ 20x = 224, then what is x?

Solution:

x^2 + 20x = 224

Add 100 on both sides, x^2+ 20x + 100 = 224 + 100 = 324

$(x+10)^2$ = 324

x + 10 = $\sqrt{324}$ = ± 18

x = 18-10 = 8 or x = (-18) – 10 = -28

4. If x^2 – 2x = 99, then what is x?

Solution:

x^2 – 2x = 99

Add 1 on both sides, we get x^2- 2x + 1 = 99 + 1 = 100

$(x-1)^2$ = 100

x- 1 = $\sqrt{100}$ = ± 10

x = 10 + 1 = 11 or x = (-10) + 1 = -9

5. A rectangle is to be made with perimeter 100 metres and area 525 square metres. What should be the length of its sides?

Solution:

Let the length of a side be x metres. So length of all other sides is (50 – x) metres.

Then area is x (50 –x) = 525

50x - x^2 = 525

x^2 – 50x = -525

Add 625 on both sides, we get x^2- 50x + 625 = (-525) + 625 = 100

$(x-25)^2$ = 100

x – 25 = $\sqrt{100}$ = $\pm$ 10

x = 10 + 25 = 35 or x = (-10) + 25 = 15

When x = 35, 50 – x = 50 – 35 = 15

When x = 15, 50 – x = 50 – 15 = 35

Thus the lengths of the sides of the rectangle are 35 m and 15m.