QUADRATIC EQUATIONS

VADDI SRIKARAN (vaddisrikaran@sriprakashschools.com)

August 6, 2023

10^{th} Maths - Chapter 4

This is Problem-2.1 from Exercise 4.1

1. Represent the following situations in the form of quadratic equations : (i) The area of a rectangular plot is 528 m^2. The length of the plot (in metres) is one more than twice its breadth. We need to find the length and breadth of the plot
Solution: :
Required quadratic equation is :

$$2x^2 + x - 528 = 0 \tag{1}$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \tag{2}$$

$$x = \frac{-1 \pm \sqrt{1^2 - (4)(2)(-528)}}{(2)(2)} \tag{3}$$

$$x = \frac{-1 \pm \sqrt{1 + 4224}}{4} \tag{4}$$

$$x = \frac{-1 \pm 65}{4} \tag{5}$$

$$x_1 = \frac{64}{4} \tag{6}$$

$$x_2 = \frac{-65}{4} \tag{7}$$

$$x_1 = 16 \tag{8}$$

$$x_2 = -16.25 \tag{9}$$

$$\tag{10}$$

since breadth cannot be negative, breadth=16m Hence, Length of plot is $2x+1=2\times16+1=33$m