# Quadratic-Equations

Paidisetty Rithik(paidisettyrithik@sriprakashschools.com)

August 5, 2023

## $10^{th}$ Maths - Chapter 4

This is Problem-3 from Exercise 4.2

1. Find two numbers whose sum is 27 and produict is 182

**Solution:**
let the first number be $x$, therefore the second will be $x - 27$
Given:

$$x(x-27) = 182 \tag{1}$$
$$\implies x^2 - 27x = 182 \tag{2}$$
$$\implies x^2 - 27x - 182 = 0 \tag{3}$$

Using formula method,first solution is:

$$x_1 = \frac{-b + \sqrt{b^2 - 4ac}}{2a} \tag{4}$$
$$= \frac{-(-27) + \sqrt{(-27)^2 - 4(1)(-182)}}{2(1)} \tag{5}$$
$$= \frac{27 + \sqrt{729 + 728}}{2} \tag{6}$$
$$= \frac{27 + \sqrt{1457}}{2} \tag{7}$$

the second solution is:

$$x_2 = \frac{-b - \sqrt{b^2 - 4ac}}{2a} \tag{8}$$

$$= \frac{-(-27) - \sqrt{1457}}{2} \tag{9}$$

$$= \frac{27 - \sqrt{1457}}{2} \tag{10}$$