ASSIGNMENT 1

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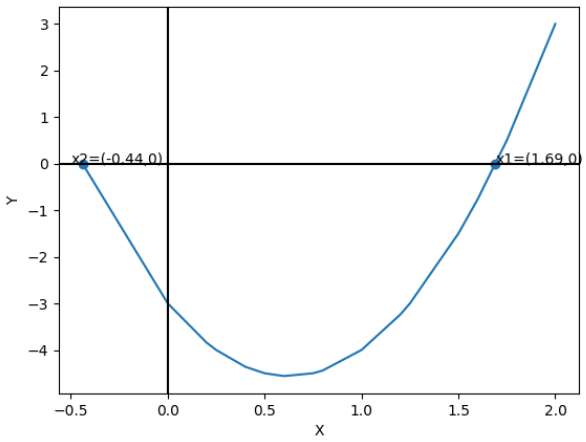

Problem 1(b): Solve the equation $4x^2 - 5x - 3 = 0$ and give your answer correct to 2 decimal places

SOLUTION: For any kind of equation of the form $ax^2 + bx + c = 0$

It's roots are

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

For the given equation-

$$4x^2 - 5x - 3 = 0 \qquad (1)$$

roots upto two decimal places are :-

1)

$$\begin{aligned} x_1 &= \frac{5 + \sqrt{(-5)^2 - 4 \times 4 \times (-3)}}{2 \times 4} \\ &= \frac{5 + \sqrt{25 + 48}}{8} \\ &= \frac{5 + \sqrt{73}}{8} \\ &= \frac{5 + 8.54}{8} \\ &= \frac{13.54}{8} \\ &= 1.69 \end{aligned}$$

2)

$$\begin{aligned} x_2 &= \frac{5 - \sqrt{(-5)^2 - 4 \times 4 \times (-3)}}{2 \times 4} \\ &= \frac{5 - \sqrt{25 + 48}}{8} \\ &= \frac{5 - \sqrt{73}}{8} \\ &= \frac{5 - 8.54}{8} \\ &= \frac{-3.54}{8} \\ &= -0.44 \end{aligned}$$

The roots of the given equation are 1.69 and -0.44