# NCERT Mathematics 11.9.3 Q32

## EE23BTECH11213 - MUTHYALA NIKHITHA SRI

**Question:** If A.M. and G.M. of roots of a quadratic equation are 8 and 5,respectively,then obtain the quadratic equation.

**Solution:**

| Parameter | Description | Value |
|---|---|---|
| $x_1, x_2$ | Roots of $ax^2 + bx + c = 0$ | |
| $\frac{x_1+x_2}{2}$ | A.M. of roots | 8 |
| $\sqrt{x_1 \cdot x_2}$ | G.M. of roots | 5 |

TABLE I

INPUT PARAMETERS

$$x_1 \cdot x_2 = 25 \qquad (1)$$

$$\implies \frac{c}{a} = 25 \qquad (2)$$

$$x_1 + x_2 = 16 \qquad (3)$$

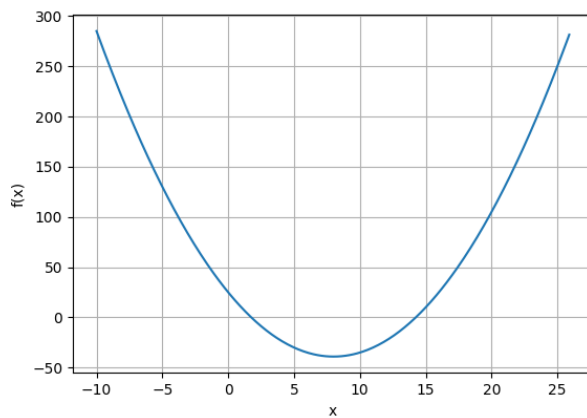$$\implies \frac{b}{a} = -16 \qquad (4)$$

$$\implies x^2 - 16x + 25 = 0 \qquad (5)$$



Fig. 1. Plot of $f(x) = x^2 - 16x + 25$