# AI 1110 ASSIGNMENT 1

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**Question:** : 10(a) : The sum of the ages of vivek and his younger brother amit is 47 years.The product of their ages in years is 550.Find their ages.

**Solution:** Let the age of vivek be 'x' and the age of amit be 'y'. $x, y \in N$

Given

$$x > y \tag{1}$$

$$x + y = 47 \tag{2}$$

$$xy = 550 \tag{3}$$

from(3)

$$y = \frac{550}{x} \tag{4}$$

substituting (4) in (2)

$$\implies x + \frac{550}{x} = 47$$

$$\implies x^2 - 47x + 550 = 0$$

$$\implies x^2 - (25 + 22)x + (25 \times 22) = 0$$

$$\implies x = 25 \quad or \quad x = 22$$

according to (1)

discarding $x = 22$ as if $x = 22$ then $y = 25$

$\therefore$ the value of $x = 25$ and value of $x = 22$
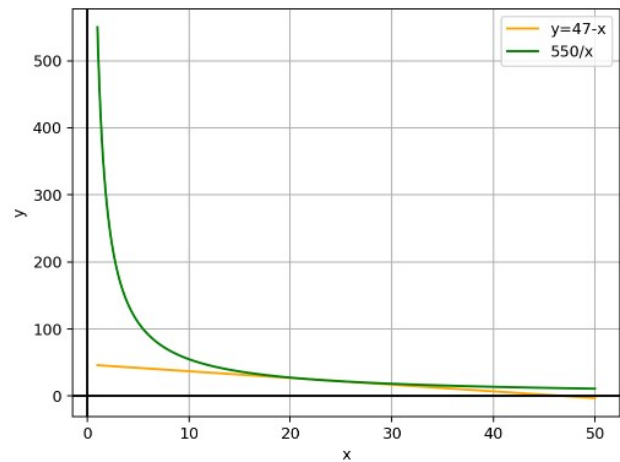
The age of Vivek is 25 years and age of Amit is 22 years



Fig. 1. Plot of $y = 47 - x$ and $y = \frac{550}{x}$ intersect at $x = 22$ and $x = 24$ but $x$ is not equal to 22