

CHAPTER 06**Progressions****Example:**

Find 'x' so that $x, x + 2, x + 6$ are consecutive terms of a geometric progression.

Sol.

If $x, x + 2, x + 6$ are in G.P.

Then, $\frac{a_2}{a_1} = \frac{a_3}{a_2}$ ($\because$ Common ratio $(r) = \frac{a_2}{a_1} = \frac{a_3}{a_2} = \frac{a_4}{a_3} = \dots$)

$$\therefore \frac{x+2}{x} = \frac{x+6}{x+2}$$

$$\Rightarrow (x+2)(x+2) = x(x+6)$$

$$\Rightarrow x^2 + 4x + 4 = x^2 + 6x$$

$$\Rightarrow 6x - 4x = 4$$

$$\Rightarrow 2x = 4$$

$$\Rightarrow x = \frac{4}{2}$$

$$\therefore x = 2$$