

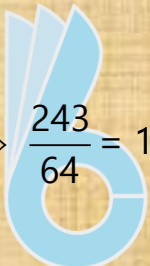
CHAPTER 06**Progressions****Example:**

Which term of the sequence 16, 12, 9... is $\frac{243}{64}$?

Sol.

Here, $a = 16$, $r = \frac{12}{16} = \frac{3}{4}$ and $a_n = \frac{243}{64} = \text{Last term}$

$$a_n = ar^{n-1}$$


$$\Rightarrow \frac{243}{64} = 16 \left(\frac{3}{4}\right)^{n-1}$$

$$\Rightarrow \frac{243}{64 \times 16} = \left(\frac{3}{4}\right)^{n-1}$$

$$\Rightarrow \left(\frac{3}{4}\right)^5 = \left(\frac{3}{4}\right)^{n-1}$$

$$\Rightarrow 5 = n - 1$$

$$\Rightarrow n = 5 + 1 = 6 \Rightarrow n = 6$$

$\therefore \frac{243}{64}$ is the 6th term.