

CHAPTER 05**Arithmetic Progressions**

Determine the A.P whose 3rd term is 5 and the 7th term is '9'.

Sol.

We have,

$$a_3 = a + (3 - 1)d = a + 2d = 5 \dots\dots\dots (1)$$

$$a_7 = a + (7 - 1)d = a + 6d = 9 \dots\dots\dots (2)$$

Solve (1) & (2),

$$\begin{array}{rcl} (1) - (2) & \Rightarrow & a + 2d = 5 \\ & & a + 6d = 9 \\ & & \underline{- \quad - \quad -} \\ & & -4d = -4 \\ & & \underline{\hspace{1.5cm}} \\ & & d = \frac{4}{4} \\ & & d = 1 \end{array}$$

Substitute $d = 1$ in equation (1),

$$a + 2(1) = 5$$

$$\Rightarrow a + 2 = 5$$

$$\Rightarrow a = 5 - 2 = 3$$

$$\therefore a = 3$$

Hence, the required A.P is 3, 4, 5, 6, 7...

