3. Is $g = \{(1,1),(2,3),(3,5),(4,7)\}$ a function? If g is described by $g(x) = \alpha x + \beta$, then what value should be assigned to α and β?

Sol. Given that, $g = \{(1, 1), (2, 3), (3, 5), (4, 7)\}$.

Here, each element of domain has unique image. So, g is a function.

Now given that, $g(x) = \alpha x + \beta$

$$g(1) = 1$$

$$\Rightarrow \quad \alpha + \beta = 1 \qquad \text{(i)}$$

$$g(2) = 3$$

$$\Rightarrow \quad 2\alpha + \beta = 3 \qquad \text{(ii)}$$

Solving (i) and (ii), we get

$$\alpha = 2, \beta = -1$$

$$\therefore \Rightarrow \quad g(x) = 2x - 1$$

Above function satisfies (3, 5) and (4, 7).