

3 (vi)

let Jacob's present age = x yearsson's present age = y years

acc. to condition I

$$x + 5 = 3(y + 5)$$

$$\Rightarrow x + 5 = 3y + 15$$

$$\Rightarrow x - 3y = 10 \dots \textcircled{1}$$

acc. to condition II

$$x - 5 = 7(y - 5)$$

$$\Rightarrow x - 5 = 7y - 35$$

$$\Rightarrow x - 7y = -30 \dots \textcircled{II}$$

$$\Rightarrow x = 7y - 30 \dots \textcircled{III}$$

Sub in \textcircled{I}

$$7y - 30 - 3y = 10$$

$$\Rightarrow 4y = 40$$

$$\Rightarrow y = \frac{40}{4}$$

$$\Rightarrow y = 10$$

Sub. in \textcircled{I}

$$x - 30 = 10$$

$$\Rightarrow x = 40$$

Jacob's present age = 40 years

son's present age = 10 years