③ let actual speed = x km/h

let actual time = y h

$\therefore$ distance = $s \times t$

$= xy$ km

acc to condition I

Speed = $(x+10)$ km/h

time = $(y-2)$ h

$\therefore$ distance = $(x+10)(y-2)$ km

acc. to cII

speed = $(x-10)$ km/h

time = $(y+3)$ h

dis. = $(x-10)(y+3)$

$xy = (x+10)(y-2) = (x-10)(y+3)$ [$\because$ Same distance]

$xy = (x+10)(y-2)$

$xy = xy - 2x + 10y - 20$

$\Rightarrow 2x - 10y = -20$

$\Rightarrow x - 5y = -10 \cdots (1)$

$xy = (x-10)(y+3)$

$xy = xy + 3x - 10y - 30$

$3x - 10y = 30 \cdots (11)$

$(1) \times 2 - (11) \times 1$

$$\begin{array}{r} 2x - 10y = -20 \\ 3x - 10y = 30 \\ - \quad + \quad - \\ \hline -x = -50 \end{array}$$

$\Rightarrow x = 50$

Sub (1)

$50 - 5y = -10$

$5y = 60$

$y = \frac{60}{5}$

$= 12$