by y.

Then, $3x = 4y \Rightarrow x = \frac{4}{3}y \Rightarrow 4x = \frac{16}{3}y$.

Ratio of speeds of dog and hare =

Ratio of distances covered by them in the same time.

$= 4x : 5y = \frac{16}{3}y : 5y = \frac{16}{3} : 5 = 16 : 15$.

④. While covering a distance of 24 km, a man noticed that after walking for 1 hour and 40 minutes, the distance covered by him was $\frac{5}{7}$ of the remaining distance. What was his speed in metres per second?

soln:- Let the speed be x km/hr

Then, distance covered in 1 hr 40 min. in $1\frac{2}{3}$ hrs $= \frac{5x}{3}$ km.

Remaining distance $= \left(24 - \frac{5x}{3}\right)$ km

$\therefore \frac{5x}{3} = \frac{5}{7}\left(24 - \frac{5x}{3}\right) \Leftrightarrow \frac{5x}{3} = \frac{5}{7}\left(\frac{72 - 5x}{3}\right)$

$\Leftrightarrow 7x = 72 - 5x$

$\Leftrightarrow 12x = 72 \Leftrightarrow x = 6$

Hence, speed $= 6$ km/hr $= \left(6 \times \frac{5}{18}\right)$ m/sec

$= \frac{5}{3}$ m/sec $= 1\frac{2}{3}$ m/sec.

⑤ Peter can cover a certain distance in 1 hr. 24 min by covering two-third of the distance at 4 kmph and the rest at 5 kmph. find the total distance.