

3④ let fixed charge = ₹x
let fare per km. = ₹y
acc. to condition I

$$x + 10y = 105 \dots \textcircled{1}$$

$$x + 15y = 155 \dots \textcircled{2}$$

$$\Rightarrow x = 155 - 15y \dots \textcircled{3}$$

Sub. value of x in ①

$$155 - 15y + 10y = 105$$

$$\Rightarrow -5y = 105 - 155$$

$$\Rightarrow -5y = -50$$

$$\Rightarrow y = \frac{-50}{-5}$$

$$\Rightarrow y = 10$$

Sub value of y in ③

$$x = 155 - 15 \times 10$$

$$= 155 - 150$$

$$= 5$$

\therefore fixed charges = ₹5, fare per km. = ₹10

3⑤ let numerator = x

denominator = y

fraction = $\frac{x}{y}$

acc. to condition I

$$\frac{x+2}{y+2} = \frac{9}{11}$$

$$\Rightarrow 11x + 22 = 9y + 18$$

$$\Rightarrow 11x - 9y = -4 \dots \textcircled{1}$$

acc to condition II

$$\frac{x+3}{y+3} = \frac{5}{6}$$

$$6x + 18 = 5y + 15$$

$$\Rightarrow 6x - 5y = -3 \dots \textcircled{2}$$

$$\Rightarrow x = \frac{5y-3}{6} \dots \textcircled{3}$$

Sub ①

$$11\left(\frac{5y-3}{6}\right) - 9y = -4$$

$$\times 6 \quad 55y - 33 - 54y = -24$$

$$\Rightarrow y = 9$$

Sub ③

$$x = \frac{45-3}{6}$$

$$x = 7$$

$$\therefore \text{Fraction} = \frac{7}{9}$$