

24. Let the cost price (C.P) of a calf and a cow be 'x' and 'y' ₹ respectively.

I Condition :

∴ Profit on selling calf = 25%

$$\therefore \text{S.P of calf} = \frac{125x}{100} \quad \left[\text{S.P} = \frac{\text{C.P} \times (100 + \%P)}{100} \right]$$

and

Profit on selling a cow = 10%

$$\therefore \text{S.P of cow} = \frac{110y}{100} \quad \left[\text{S.P} = \frac{\text{C.P} \times (100 + \%P)}{100} \right]$$

∴ He sold calf and cow at ₹ 760 (as per first condition)

$$\therefore \frac{125x}{100} + \frac{110y}{100} = 760$$

$$\therefore 125x + 110y = 76000$$



II Condition :

Profit on Calf is 10%

$$\therefore \text{S.P of calf} = \frac{110x}{100}$$

Profit on cow is 25%

$$\therefore \text{S.P of cow} = \frac{125y}{100}$$

He sold calf and cow at ₹ 767.50
(as per 2nd condition)

$$\therefore \frac{110x}{100} + \frac{125y}{100} = 767.50$$

$$\boxed{\therefore 110x + 125y = 76750} \quad (\text{Multiplying by } 100)$$

Adding I and II we get,

$$235x + 235y = 152750$$

$$\boxed{x + y = 650} \quad (\text{Dividing by } 235)$$

Subtracting II from I,

$$15x - 15y = -750$$

$$\boxed{x - y = -50} \quad \text{--- (IV)}$$

Adding (III) and (IV) we get,

$$2x = 600, \therefore \boxed{x = 300}$$

Substituting $x = 300$ in (iii) we get,

$$300 + y = 650$$

$$\therefore y = 350 \text{ ₹}$$

\therefore Cost of a calf = 300 ₹

Cost of a cow = 350 ₹