Pair of Linear Equations in Two varibles Ex 3.6 Q7

Answer :

To find:

(1) Total mangoes of A.

(2) Total mangoes of B.

Suppose A has x mangoes and B has y mangoes,

According to the given conditions,

$$x+30=2(y-30)$$
$$x+30=2y-60$$
$$x-2y+30+60=0$$
$$x-2y+90=0 \quad \ldots\ldots(1)$$
$$y+10=3(x-10)$$
$$y+0=3x-30$$
$$y-3x+10+30=0$$
$$y-3x+40=0 \quad \ldots\ldots(2)$$

Multiplying eq. 1 by (3),

$3x + 6y + 270 = 0$ ..... (3) and

Now adding eq.2 and eq.3

$5y = 310$

$$y=\frac{310}{5}$$

$$\boxed{y=62}$$

$$x-2\times 62+90=0$$
$$x-124+90=0$$
$$x-34=0$$

$$\boxed{x=34}$$

Hence A has 34 mangoes and B has 62 mangoes.

Pair of Linear Equations in Two varibles Ex 3.6 Q8

Answer :

Given:

(i) On selling of a T.V. at 5% gain and a fridge at 10% gain, shopkeeper gain Rs.2000.

(ii) Selling T.V. at 10% gain and fridge at 5% loss. He gains Rs. 1500.

To find: Actual price of T.V. and fridge.

Let the S.P. of T.V $=$ Rs. x;

Let the S.P. of fridge $=$ Rs. y

$$\text{S.P. of T.V at 5\% gain} = \frac{5x}{100}$$

$$\text{S.P. of T.V at 10\% gain} = \frac{10x}{100}$$

$$\text{S.P. of Fridge at 5\% gain} = \frac{5y}{100}$$

$$\text{S.P. of Fridge at 10\% gain} = \frac{10y}{100}$$

According to the question:

$$\frac{5x}{100}+\frac{10y}{100}=2000$$
$$5x+10y=200000$$
$$x+2y=40000$$
$$x+2y-40000=0 \quad \ldots\ldots(1)$$
$$\frac{10x}{100}-\frac{5y}{100}y=1500$$

$$10x - 5y = 15000$$

$$2x - 1y = 30000$$

$$2x - 1y = 30000 = 0 \quad \ldots\ldots (2)$$

Hence we got the pair of equations

$1x + 2y - 40000 = 0$ ..... (1)

$2x - 1y - 30000 = 0$ ..... (2)

Solving the equation by cross multiplication method;

$$\frac{x}{(-30000 \times 2) - (40000)} = \frac{-y}{(-30000 \times 1) - (-40000 \times 2)} = \frac{1}{(-1-4)}$$

$$\frac{x}{(-100000)} = \frac{-y}{(50000)} = \frac{1}{(-5)}$$

$$\frac{x}{(-100000)} = \frac{1}{(-5)}$$

$$\boxed{x = 20000}$$

$$\frac{-y}{(50000)} = \frac{1}{(-5)}$$

$$\boxed{y = 10000}$$

Cost of T.V. = $\boxed{20000}$

Cost of fridge = $\boxed{10000}$

Hence the cost of T.V. is $\boxed{\text{Rs } 20000}$ and that of fridge is $\boxed{\text{Rs } 10000}$.

********** END **********