



Pair of Linear Equations in Two variables Ex 3.6 Q1

Answer :

Given:

(i) 5 pens and 6 pencils together cost of Rs. 9.

(ii) 3 pens and 2 pencils cost Rs. 5.

To Find: Cost of 1 pen and 1 pencil.

Let

(i) The cost of 1 pen = Rs x .

(ii) The cost of 1 pencil = Rs y .

According to question

$$5x + 6y = 9 \quad \text{..... (1)}$$

$$3x + 2y = 5 \quad \text{..... (2)}$$

Thus we get the following system of linear equation

$$5x + 6y - 9 = 0 \quad \text{.....(3) from eq. 1}$$

$$3x + 2y - 5 = 0 \quad \text{.....(4) from eq. 2}$$

By using cross multiplication we have

$$\frac{-x}{(-30)-(-18)} = \frac{-y}{(-25)-(-27)} = \frac{1}{(10)-(18)}$$

$$\frac{x}{-30+18} = \frac{-y}{-25+27} = \frac{1}{10-18}$$

$$\frac{x}{-12} = \frac{-y}{2} = \frac{1}{-8}$$

$$\therefore x = \frac{-12}{-8}$$

$$x = \frac{12}{8}$$

$$= \frac{3}{2}$$

$$\boxed{x = \frac{3}{2}}$$

$$\therefore y = \frac{2}{8}$$

$$\boxed{y = \frac{1}{4}}$$

$$\text{Cost of one pen} = \boxed{\text{Rs. } \frac{3}{2}}$$

$$\text{Cost of one pencil} = \boxed{\text{Rs. } \frac{1}{4}}$$

Pair of Linear Equations in Two variables Ex 3.6 Q2

Answer :

Given:

(i) 7 Audio cassettes and 3 Video cassettes cost is 1110.

(ii) 5 Audio cassettes and 4 Video cassettes cost Rs. 1350.

To Find: Cost of 1 audio cassette and 1 video cassettes.

Let (i) the cost of 1 audio cassette = Rs. x .

(ii) the cost of 1 video cassette = Rs. y .

According to the given conditions, we have

$$7x + 3y = 1110$$

$$\Rightarrow 7x + 3y - 1110 = 0 \quad \text{.....(1)}$$

$$5x + 4y = 1350$$

$$\Rightarrow 5x + 4y - 1350 = 0 \quad \text{.....(2)}$$

Thus, we get the following system of linear equation,

$$7x + 3y - 1110 = 0 \quad \text{.....(1)}$$

$$5x + 4y - 1350 = 0 \quad \text{.....(2)}$$

By using cross multiplication, we have

$$\frac{x}{-4050 - (-4440)} = \frac{-y}{-9450 - (-5550)} = \frac{1}{28 - 15}$$

$$\frac{x}{-4050 + 4440} = \frac{-y}{-9450 + 5550} = \frac{1}{28 - 15}$$

$$\frac{x}{390} = \frac{-y}{-3900} = \frac{1}{13}$$

$$\therefore x = \frac{390}{13}$$

$$\boxed{x = \text{Rs. } 30}$$

$$\therefore y = \frac{3900}{13}$$

$$\boxed{y = \text{Rs. } 300}$$

Hence cost of 1 audio cassette = $\boxed{\text{Rs. } 30}$

Hence cost of 1 video cassette = $\boxed{\text{Rs. } 300}$

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