Pair of Linear Equations in Two varibles 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

$5x+6y=9$ ..... (1)

$3x+2y=5$ ..... (2)

Thus we get the following system of linear equation

$5x+6y-9=0$ .....(3) from eq. 1

$3x+2y-5=0$ .....(4) from eq. 2

By using cross multiplication we have

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

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

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

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

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

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

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

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

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

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

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

Pair of Linear Equations in Two varibles 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

$$7x+3y=1110$$

$$\Rightarrow \quad 7x+3y-1110=0 \qquad \ldots\ldots(1)$$

$$5x+4y=1350$$

$$\Rightarrow \quad 5x+4y-1350=0 \qquad \ldots\ldots(2)$$

Thus, we get the following system of linear equation,

$$7x+3y-1110=0 \qquad \ldots\ldots(1)$$

$$5x+4y-1350=0 \qquad \ldots\ldots(2)$$

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 = Rs. 30

Hence cost of 1 video cassette = Rs. 300

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