Pair of Linear Equations in Two varibles Ex 3.11 Q5

Answer :

Let the money with A be Rs x and the money with B be Rs y.

If A gives Rs 30 to B, Then B will have twice the money left with A, According to the condition we have,

$$y+30=2(x-30)$$
$$y+30=2x-60$$
$$0=2x-y-60-30$$
$$0=2x-y-90\cdots(i)$$

If B gives Rs 10 to A, then A will have thrice as much as is left with B,

$$x+10=3(y-10)$$
$$x+10=3y-30$$
$$x-3y+10+30=0$$
$$x-3y+40=0\cdots(ii)$$

By multiplying equation (ii) with 2 we get, $2x-6y+80=0$

By subtracting (ii) from (i) we get,

By substituting $y=34$ in equation (i) we get

$$x=\frac{124}{2}$$
$$x=62$$

Hence the money with A be $\boxed{Rs.\ 62}$ and the money with B be $\boxed{Rs.\ 34}$

Pair of Linear Equations in Two varibles Ex 3.11 Q6

Answer :

Let us take the A examination room will be x and the B examination room will be y

If 10 candidates are sent from A to B, the number of students in each room is same. According to the above condition equation will be

$$y+10=x-10$$
$$0=x-y-10-10$$
$$x-y-20=0\cdots(i)$$

If 20 candidates are sent from B to A, the number of students in A is double the number of students in B, then equation will be,

$$x+20=2(y-20)$$
$$x+20=2y-40$$
$$x+20-2y+40=0$$
$$x-2y+20+40=0$$
$$x-2y+60=0\cdots(ii)$$

By subtracting the equation (i) from (ii) we get, $y=80$

Substituting $y=80$ in equation (i), we get

Hence $\boxed{100}$ candidates are in A examination Room,

$\boxed{80}$ candidates are in B examination Room.

Pair of Linear Equations in Two varibles Ex 3.11 Q7

Answer :

A man can alone finish the work in x days and one boy alone can finish it in y days then

One mans one days work $=\frac{1}{x}$

One boys one days work= $\frac{1}{y}$

2men one day work=$\frac{2}{x}$

7boys one day work=$\frac{7}{y}$

Since 2 men and 7 boys can finish the work in 4 days

$$4\left(\frac{2}{x}+\frac{7}{y}\right)=1$$

$$\frac{8}{x}+\frac{28}{y}=1\cdots(i)$$

Again 4 men and 4 boys can finish the work in 3 days

$$3\left(\frac{4}{x}+\frac{4}{y}\right)=1$$

$$\frac{12}{x}+\frac{12}{y}=1\cdots(ii)$$

Putting $\frac{1}{x}=u$ and $\frac{1}{y}=v$ in equation $(i)$and (ii) we get

$$8u+28v=1$$

$$12u+12v=1$$

$$8u+28v-1\cdots(iii)$$

$$12u+12v-1\cdots(iv)$$

By using cross multiplication we have

Now,

$$u=\frac{1}{15}$$

$$\frac{1}{x}=\frac{1}{15}$$

$$x=15$$

and

$$v=\frac{1}{60}$$

$$\frac{1}{y}=\frac{1}{60}$$

$$y=60$$

Hence, one man alone can finish the work in $\boxed{15\ days}$ and one boy alone can finish the work in $\boxed{60\ days}$.

Pair of Linear Equations in Two varibles Ex 3.11 Q8

Answer :

Let $\angle A = x^\circ, \angle B = (3x-2)^\circ$, $\angle C = y^\circ$ and

$\angle C - \angle B = 9^\circ$

$\Rightarrow \angle C = 9^\circ + \angle B$

$\Rightarrow \angle C = 9^\circ + 3x^\circ - 2^\circ$

$\Rightarrow \angle C = 7^\circ + 3x^\circ$

Substitute $\angle C = y^\circ$ in above equation we get ,

$y^\circ = 7^\circ + 3x^\circ$

$\angle A + \angle B + \angle C = 180^\circ$

$\Rightarrow x^\circ + \left(3x^\circ - 2^\circ\right) + \left(7^\circ + 3x^\circ\right) = 180^\circ$

$\Rightarrow 7x^\circ + 5^\circ = 180^\circ$

$\Rightarrow 7x^\circ = 180^\circ - 5^\circ = 175^\circ$

$\Rightarrow x^\circ = \frac{175^\circ}{7^\circ} = 25^\circ$

$\angle A = x^\circ = 25^\circ$

$\angle B = \left(3x-2\right)^\circ = 3\left(25^\circ\right) - 2^\circ = 73^\circ$

$\angle C = \left(7^\circ + 3x^\circ\right) = 7^\circ + 3\left(25\right)^\circ = 82^\circ$

$\angle A = 25^\circ, \angle B = 73^\circ, \angle C = 82^\circ$

Hence, the answer.

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