

## Pair of Linear Equations in Two varibles Ex 3.9 Q9

Let the present age of father be x years and the present age of his son be y years.

After 2 years, father's age will be (x+2) years and the age of son will be (y+2) years. Thus using the given information, we have

$$x+2=3(y+2)+8$$

$$\Rightarrow x + 2 = 3y + 6 + 8$$

$$\Rightarrow x-3y-12=0$$

Before 2 years, the age of father was (x-2) years and the age of son was (y-2) years. Thus using the given information, we have

$$x-2=5(y-2)$$

$$\Rightarrow x - 2 = 5y - 10$$

$$\Rightarrow x - 5y + 8 = 0$$

So, we have two equations

$$x-3y-12=0$$

$$x - 5y + 8 = 0$$

Here x and y are unknowns. We have to solve the above equations for x and y.

By using cross-multiplication, we have

$$\frac{x}{(-3) \times 8 - (-5) \times (-12)} = \frac{-y}{1 \times 8 - 1 \times (-12)} = \frac{1}{1 \times (-5) - 1 \times (-3)}$$

$$\Rightarrow \frac{x}{-24 - 60} = \frac{-y}{8 + 12} = \frac{1}{-5 + 3}$$

$$\Rightarrow \frac{x}{-84} = \frac{-y}{20} = \frac{1}{-2}$$

$$\Rightarrow \frac{x}{84} = \frac{y}{20} = \frac{1}{2}$$

$$\Rightarrow x = \frac{84}{2}, y = \frac{20}{2}$$

$$\Rightarrow x = 42, y = 10$$

Hence, the present age of father is  $\boxed{42}$  years and the present age of son is  $\boxed{10}$  years.

## Pair of Linear Equations in Two varibles Ex 3.9 Q10

## Answer

Let the present age of Nuri be x years and the present age of Sonu be y years.

After 10 years, Nuri's age will be(x + 10) years and the age of Sonu will be(y + 10) years. Thus using the given information, we have

$$x+10 = 2(y+10)$$

$$\Rightarrow x+10=2y+20$$

$$\Rightarrow x-2y-10=0$$

Before 5 years, the age of Nuri was (x - 5) years and the age of Sonu was (y - 5) years. Thus using the given information, we have

$$x-5=3(y-5)$$

$$\Rightarrow x-5=3y-15$$

$$\Rightarrow x-3y+10=0$$

So, we have two equations

$$x-2y-10=0$$

$$x - 3y + 10 = 0$$

Here x and y are unknowns. We have to solve the above equations for x and y. By using cross-multiplication, we have

$$\frac{x}{(-2)\times10 - (-3)\times(-10)} = \frac{-y}{1\times10 - 1\times(-10)} = \frac{1}{1\times(-3) - 1\times(-2)}$$

$$\Rightarrow \frac{x}{-20 - 30} = \frac{-y}{10 + 10} = \frac{1}{-3 + 2}$$

$$\Rightarrow \frac{x}{-50} = \frac{-y}{20} = \frac{1}{-1}$$

$$\Rightarrow \frac{x}{50} = \frac{y}{20} = 1$$

$$\Rightarrow x = 50, y = 20$$

Hence, the present age of Nuri is  $\boxed{50}$  years and the present age of Sonu is  $\boxed{20}$  years.

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