

### Ex - 3.1

**Q1.** Aftab tells his daughter, "Seven years ago, I was seven times as old as you were then. Also, three years from now, I shall be three times as old as you will be". (Isn't this interesting?) Represent this situation algebraically and graphically.

**Sol.** Let the present age of Aftab's daughter =  $x$  years.  
and the present age of Aftab =  $y$  years ( $y > x$ )

According to the given conditions

Seven years ago,

$$(y - 7) = 7 \times (x - 7)$$

i.e.,  $y - 7 = 7x - 49$

i.e.,  $7x - y - 42 = 0$  ...**(i)**

Three years later,  $(y + 3) = 3 \times (x + 3)$

i.e.,  $y + 3 = 3x + 9$

i.e.,  $3x - y + 6 = 0$  ...**(ii)**

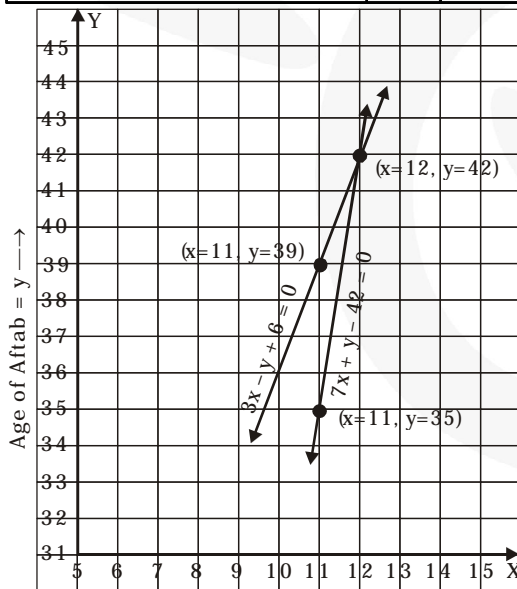
Thus, the algebraic relations are  $7x - y - 42 = 0$ ,  $3x - y + 6 = 0$ .

Now, we represent the problem graphically as below :  $7x - y - 42 = 0$  ...**(i)**

Age of Aftab's daughter = $x$	11	12
Age of Aftab = $y = 7x - 42$	35	42

$3x - y + 6 = 0$  ...**(ii)**

Age of Aftab's daughter = $x$	11	12
Age of Aftab = $y = 3x + 6$	39	42



Age of Daughter =  $x$  →

From the graph, we find that

$$x = 12$$

and  $y = 42$

Thus, the present age of Aftab's daughter = 12 years

and the present age of Aftab = 42 years

**Q2.** The coach of a cricket team buys 3 bats and 6 balls for ₹ 3900. Later, she buys another bat and 3 more balls of the same kind for ₹ 1300. Represent this situation algebraically and geometrically.

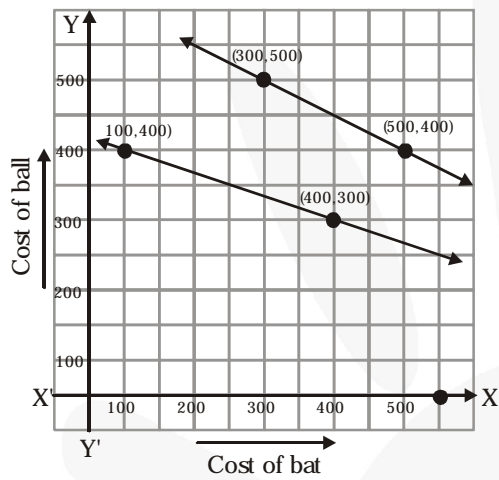
**Sol.** Let the cost of 1 bat be ₹  $x$   
and the cost of 1 ball be ₹  $y$

So,  $3x + 6y = 3900$  and  $x + 3y = 1300$

x	300	500
y	500	400

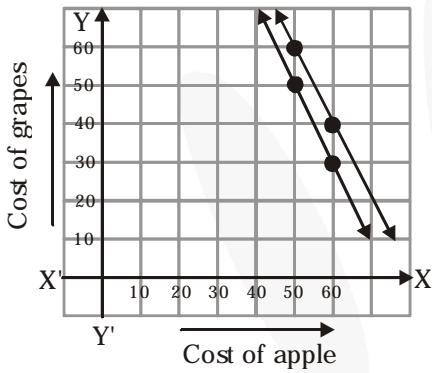
and

x	400	100
y	300	400



**Q3.** The cost of 2 kg of apples and 1 kg of grapes on a day was found to be ₹ 160. After a month, the cost of 4 kg of apples and 2 kg of grapes is ₹ 300. Represent the situation algebraically and geometrically.

**Sol.** Let the cost of 1 kg of apple be ₹  $x$   
 and the cost of 1 kg of grapes be ₹  $y$   
 So,  $2x + y = 160$   
 $4x + 2y = 300$



x	50	60	and	x	50	60
y	60	40		y	50	30