



SpeedLabs

MATHS

CBSE 10th

TEEVRA EDUTECH PVT. LTD.

Pair of linear equation

Exercise-3.1

Q.1: 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 be x .

And, present age of his daughter = y

Seven years ago, Age of Aftab = $x - 7$

Age of his daughter = $y - 7$

According to the question,

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

$$x - 7 = 7y - 49$$

$$x - 7y = -42 \quad (1)$$

Three years hence,

Age of Aftab = $x + 3$

Age of his daughter = $y + 3$

According to the question,

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

$$x + 3 = 3y + 9$$

$$x - 3y = 6 \quad (2)$$

Therefore, the algebraic representation is

$$x - 7y = -42$$

$$x - 3y = 6$$

For $x - 7y = -42$

$$x = -42 + 7y$$

The solution table is

x	-7	0	7
y	5	6	7

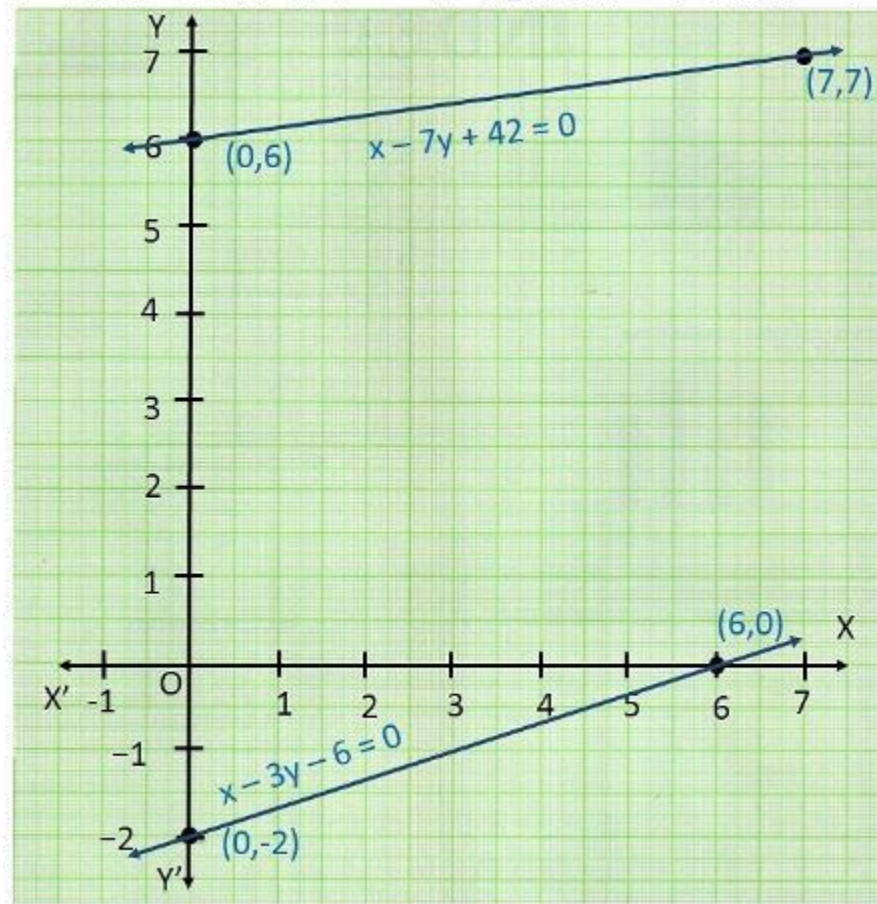
For $x - 3y = 6$

$$x = 6 + 3y$$

The solution table is

x	6	3	0
y	0	-1	-2

The graphical representation is as follows:



Q.2 The coach of a cricket team buys 3 bats and 6 balls for Rs 3900. Later, she buys another bat and 2 more balls of the same kind for Rs 1300. Represent this situation algebraically and geometrically.

Sol: Let the cost of a bat be Rs x .

And, cost of a ball = Rs y

According to the question, the algebraic representation is,

$$3x + 6y = 3900$$

$$x + 2y = 1300$$

For, $3x + 6y = 3900$

$$x = \frac{3900 - 6y}{3}$$

The solution table is

x	300	100	-100
y	500	600	700

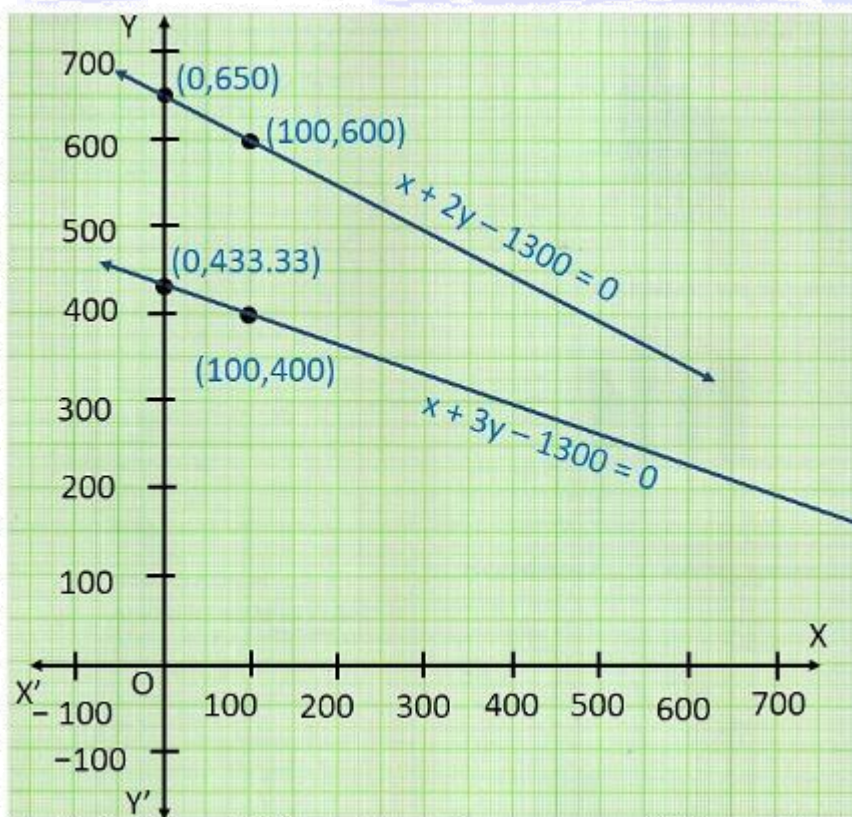
For $x + 2y = 1300$

$$x = 1300 - 2y$$

The solution table is

x	300	100	-100
y	500	600	70

The graphical representation is as follows.



Q.3 The cost of 2 kg of apples and 1 kg of grapes on a day was found to be Rs 160. After a month, the cost of 4 kg of apples and 2 kg of grapes is Rs 300. Represent the situation algebraically and geometrically.

Sol: Let the cost of 1 kg of apples be Rs x .

And, cost of 1 kg of grapes = Rs y

According to the question, the algebraic representation is

$$2x + y = 160$$

$$4x + 2y = 300$$

$$\text{for } 2x + y = 160$$

$$y = 160 - 2x$$

The solution table is

x	50	60	70
y	60	40	20

$$\text{for } 4x + 2y = 300,$$

$$y = \frac{300 - 4x}{2}$$

The solution table is

x	70	80	75
y	10	-10	0

The graphical representation is as follows.

