

NORTH-EX PUBLIC SCHOOL (Session 2020-21)
Class - X
Subject - MATHS
Chapter-3 Pair of Linear Equation in two variables
Topic – Introduction, Representing linear Equations Graphically and Algebraically
Worksheet No -6

***Note-** Before attempting the question and answers you must check the link given below which will help you understand the chapter thoroughly.

You can download the assignment or if you do not have the facility to get printout then you can ask your ward to copy the assignment in a simple notebook and must do question and answers in the notebook.

<https://youtu.be/qDX7ZHyY76o>

NOTES

Linear Equation in two variables:

An equation in the form of $ax + by + c = 0$ where x and y are variables and a , b and c are real numbers.

Pair of Linear Equation in two variables:

Two linear equations in the same two variables are called a pair of linear equations in two variables.

General form of equations are :

$$a_1x + b_1y + c = 0 \text{ and } a_2x + b_2y + c = 0$$

There are two methods of solving equations:

1. Graphical method
2. Algebraic method

Graphical method: The graph of a pair of linear equations in two variables is presented by two lines.

Algebraic method: Following are the methods for finding the solutions are:

- (a) Substitution method
- (b) Elimination method
- (c) Cross multiplication method

Example: The coach of a cricket team buys 3 bats and 6 balls for Rs. 3900. Now she buys another bat and 3 more balls of same kind for Rs. 1300. Represent the situation graphically and algebraically.

Sol: Let the cost of 1 bat be Rs x and cost of 1 ball be Rs y .

Then according to question, we have

$$3x + 6y = 3900 \quad (i)$$

$$x + 3y = 1300 \quad (ii)$$

For geometrically, from eq.(i), $y = \frac{3900 - 3x}{6}$

$$\text{when } x=100, \text{ then } y = \frac{3900-300}{6} = 600$$

$$\text{when } x=300, \text{ then } y = \frac{3900-900}{6} = 500$$

$$\text{when } x=700, \text{ then } y = \frac{3900-2100}{6} = 300$$

So we have a table

x	100	300	700
y	600	500	300

$$\text{Similarly from eq(ii) we have } y = \frac{1300-x}{3}$$

When $x=100$, then $y=400$

When $x=400$, then $y=300$

When $x=700$, then $y=200$

We have table

x	100	400	700
Y	400	300	200

Now locate the above points on the graph as we have done in class IX (using Cartesian plane)

WORKSHEET-6

1. The cost of 2kg apples and 1 kg mangoes on a day was Rs 160. After a month ,the cost of 4 kg of apples and 2 kg of mangoes is Rs 300. Represent the situation algebraically and geometrically.
2. Raman's age was seven times as old as his son before seven years ago.Also three years from now, he will be three times as old as his son will be. Represent the situation geometrically and algebraically.
3. Ankita goes to a fair with Rs 20 and wants to have rides on the gaint wheel and play Hoopla . Represent the situation geometrically and algebraically.
4. If a number is three times of other number, then represent the situation geometrically and algebraically.
5. Represent perimeter of a square geometrically and algebraically (take side of square as x and perimeter as y)

Answers

1. Two equations are $2x+y=160$ and $4x +2y=300$
2. Two equations are $x-7y=-42$ and $x-3y=6$

3. Equation is $x+y=20$, now $y=20-x$ (put value of x as your choice but it should not give negative value of y)
4. $x=3y$, then $x-3y=0$ (by putting and substituting values)
5. $y=4x$ (perimeter of square = 4 x side)