**Examination**
Class IX
(Linear Equation in two variables)

Time:1 hr   **Max. Marks**: 40

I. Answer all the Questions:

1. The cost of a notebook is twice the cost of a pen. Write a linear equation in two variables to represent this statement.

2. Express the following linear equations in the form ax + by + c = 0 and indicate the values of a, b and c in each case:
   (i)5=2x   ii) 2x=-5y   iii)-2x+3y=6   iv)y = 2   v)3x + 2 = 0

3. Find the value of k, if x = 2, y = 1 is a solution of the equation 3x + 4y = k.

4. Check which of the following are solutions of the equation x – 2y = 4 and which are not:
   (i) (0, 2) (ii) (2, 0) (iii) (4, 0)

5. Give the equations of two lines passing through (5, 20). How many more such lines are there, and why?

6. The taxi fare in a city is as follows: For the first kilometre, the fare is Rs 8 and for the subsequent distance it is Rs 5 per km. Taking the distance covered as x km and total fare as Rs y, write a linear equation for this information.

7. Draw the graph of each of the following linear equations in two variables:
   (a)3 = 2x + y   (b)y = 3x

8. From the choices given below, choose the equation whose graphs are given:

   (a)(i) y = x + 2
     (ii) y = x – 2
     (iii) y = –x + 2
     (iv) x + 2y = 6
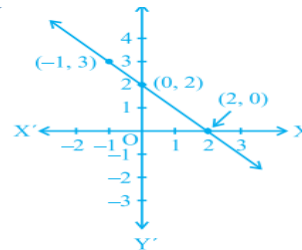
9. If the work done by a body on application of a constant force is directly proportional to the distance travelled by the body, express this in the form of an equation in two variables and draw the graph of the same by taking the constant force as 5 units. Also read from the graph the work done when the distance travelled by the body is (i) 2 units (ii) 0 unit

10. Yamini and Fatima, two students of Class IX of a school, together contributed Rs 100 towards the Prime Minister's Relief Fund to help the earthquake victims. Write a linear equation which satisfies this data. (You may take their contributions as Rs x and Rs y.) Draw the graph of the same

11. In countries like USA and Canada, temperature is measured in Fahrenheit, whereas in countries like India, it is measured in Celsius. Here is a linear equation that converts Fahrenheit to Celsius: $F = \frac{9}{5} C + 32$

    (i) If the temperature is 30°C, what is the temperature in Fahrenheit?
    (ii) If the temperature is 95°F, what is the temperature in Celsius?
    (iii) If the temperature is 0°C, what is the temperature in Fahrenheit and if the temperature is 0°F, what is the temperature in Celsius?
    (iv) Is there a temperature which is numerically the same in both Fahrenheit and Celsius? If yes, find it.

12. Solve the equation $2x + 1 = x - 3$, and represent the solution(s) on
    (i) the number line,
    (ii) the Cartesian plane.

Prepared by: Shashank