

# LINEAR EQUATIONS IN TWO VARIABLES

1. If the line represented by the equation  $3x+ay=8$  passes through the point  $(2, 2)$ , then find the value of  $a$ .
2. How many linear equations in  $x$  and  $y$  can be satisfied by  $x=1$  and  $y=2$  ?
3. At what point the graph of the linear equation  $3x+ 5y=15$  cuts the  $x$ -axis.
4. The cost of a notebook is Rs. 5 less than twice the cost of a pen . Write this statement as a linear equation in two variables
5. Find two solutions of the linear equation  $2x-3y=0$
6. Express the equation  $5x= -y$  in the general form and indicate the value of  $a$ ,  $b$  and  $c$ .
7. Find the value of  $m$ , if  $( 5,8)$  is a solution of the equation  $11x-2y =3m$  then find one more solution.
8. After 5 years,the age of father will be two times the age of the son. Write a linear equation in two variables to represent this statement.
9. Find three different solutions of the equation  $4x+3y =12$  from its graph.
10. How many solutions of equation  $5x+1= x-3$  are there
  - (i) On number line
  - (ii) In cartesian plane.

11. If the point P( 1,3) and Q(-2,-1) lie on the graph of equation  $px+qy=5$ . Find p and q .

12. Show that the points A(1, 2), (-16) and C(0, -7) lie on the graph of linear equation  $y = 9x - 7$ .

13. The taxi fare in a city is charged as per rates stated below

Rate for the first kilometre of journey is Rs. 5 and the rate for subsequent distance covered is Rs. 4 per km. Taking distance covered as x km and total fare as y, write the linear equation in variables x and y to express the above statement. Draw the graph for the linear equation.

14. 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 its graph 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

15. If the temperature of a liquid can be measured in Kelvin units as  $x^{\circ}\text{K}$  or in Fahrenheit units as  $y^{\circ}\text{F}$ , the relation between the two systems of measurement of temperature is given by the linear equation

$$y = \frac{9}{5}(x - 273) + 32$$

(i) Find the temperature of the liquid in Fahrenheit if the temperature of liquid is  $313^{\circ}\text{K}$ .

(ii) If the temperature is  $158^{\circ}\text{F}$ , then find the temperature in Kelvin.

16. The force exerted to pull a cart is directly proportional to the acceleration produced in the body. Express the statement as a linear equation of two variables and as the graph of the same by taking the constant mass equal to 6 kg. Read from graph, the force required when the acceleration produced is (i) 5 m/s (ii) 6 m/sec<sup>2</sup>.

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