# 4. Linear Equations in Two Variables

Q 1 State true or false : ax + by + c = 0, represents a closed curve.

Mark (1)

Q 2 Find the coefficient of x in the equation

$\{\sqrt{(a^2 + b^2)}\}\ x + \{\sqrt{(a^2 - b^2)}\}\ y = \sqrt{(a^2\ b^2)}$.

Mark (1)

Q 3 Write the coordinate axis represented by the line y = 0 .

Mark (1)

Q 4 Write the equation 12x +3y = 20 in the form of ax+by+c= 0 and find out the values of a, b and c.

Mark (1)

Q 5 Write 2x = 3y+5 in standard form of equation in two variables.

Mark (1)

Q 6 Write the equation of the line parallel to the y-axis.

Mark (1)

Q 7 Write the equation of the line parallel to x-axis.

Mark (1)

Q 8 Write the coordinate axis represented by the line x = 0 .

Mark (1)

Q 9 State true or false: A linear equation in two variables can have only two solutions.

Mark (1)

Q 10 State true or false: x = ay is the equation of line passing through origin.

Mark (1)

Q 11 State true or false: A linear equation of two variable can have infinitely many solutions.

Mark (1)

Q 12 State true or false: x = y + 2 represent a line passes through origin.

Mark (1)

Q 13 Find the value of k, if x=2 , y=1 is a solution of the equation 2x+3y=k.

Marks (2)

Q 14 The cost of a notebook is twice as the cost of a pen. Write a linear equation in two variables to represent this statement.

Marks (2)

Q 15 Find the value of k in the equation 2x+3y= k, where x = 2 and y = 3 is the solution of the equation.

Marks (2)

Q 16 Find the two different solutions of the equation 2x+y=4.

Marks (2)

Q 17 If a = b = 3, then find the value of x from the equation $\sqrt{a^2+b^2}\,x+\sqrt{a^2-b^2}\,y=\sqrt{a^2b^2}$.

Marks (2)

Q 18 Let y varies direct as x. If y=14, when x=7, then write a linear equation. What is the value of y when x= -2?

Marks (2)

Q 19 How many solution(s) of the equation 5x-3=3x+5 are there on the:
(i) Number line
(ii) Cartesian plane.

Marks (2)

Q 20 For what value of k the point (k,5) lies on the line 4x-5y=10 ?

Marks (2)

Q 21 If x = 1 and y = 1 is the solution of the equation 5x + 2ay = 3a, find the value of a.

Marks (2)

Q 22 Solve the equation $\frac{p^2-16}{p+4}=5\ (p\neq -4)$

Marks (2)

Q 23 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 kilometres and total fare as rupees, write a linear equation for this information.

Marks (3)

Q 24 Find four different solutions of the equation x+2y=6.

Marks (3)

Q 25 Write each of the following equations in the form ax+by+c=0 and

Indicate the values of a, b and c in each case:

(i) $2x + 3y = 4.37$

(ii) $x-4 = 3y$

(iii) $4= 5x-3y$

Marks (3)

Q 26 Solve the equation $2x+1=x-3$, and represent the solution(s) on

(i) the number line.

(ii) the Cartesian plane. Marks (3)

Q 27 Evaluate: $(5x+1)(x+3)-8=5(x+1)(x+2)$.

Marks (3)

Q 28 If the point (-1,-5) lies on the graphs of $3x=ay+7$ and $y=bx+7$, find the value of a and b.

Marks (3)

Q 29 At what point does the graph of the linear equation $2x+3y=9$ meet a line which is parallel to the y-axis, at a distance of 4 units from the origin and on the right of the y-axis.

Marks (3)

Q 30 If the point (4,3) lies on the graph of the equation $3x-ay=6$, find whether (-2,-6) also lies on the same graph.

Marks (3)

Q 31 Give the equations of two lines passing through (-2,-4). How many more such lines are there, and why?

Marks (3)

Q 32 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:

$$F=(9/5)C+32$$

Draw the graph of linear equation above using Celsius for x-axis and Fahrenheit for y-axis.

Marks (4)

Q 33 Write each of the following as an equation in two variables:

(i) $x=-5$ (ii) $y=2$ (iii) $2x=3$ (iv) $5y=2$

Marks (4)

Q 34 The taxi fare in a city is as follows: For the first kilometer, the fare is Rs.20 and for the subsequent distance it is Rs. 6 per km. Taking x km as the distance covered and Rs. y as the total fare, write a linear equation for this information and draw its graph.

Marks (4)

Q 35 The cost of a box is Rs.25. Taking x as the number of boxes and y, the total cost in rupees, construct a linear equation. Also, draw the graph.

Marks (4)

Q 36 The ratio of hydrogen and oxygen in water is 2:1. Set up an equation between hydrogen and oxygen and draw its graph. From the graph read the hydrogen if oxygen is 6 gram.

Marks (4)

Q 37 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 draw the graph of the same by taking the constant mass equal to 6 kg. Read from the graph, the force required when the
acceleration produced is (i) 5 m/sec$^2$ , (ii) 6 m/sec$^2$. Marks (4)

Q 38 The parking charges of a car at certain place in Delhi is Rs.50 for first one hour and Rs. 10 for subsequent hours. (a) Write down the equation and draw the graph for the data.(b) Read the charges from the graph (i) for 2 hours (ii) for 8 hours.

Marks (4)

Q 39 Two players A and B together scored 40 runs in a cricket match. If there is no extra run scored in their partnership, then represent this information in the form of linear equation in two variables. Draw graph of the linear equation. From the graph, find the runs recorded by player A if run scored by player B is 10.

Marks (4)

Q 40 If $\frac{3x+6}{8} - \frac{11x-8}{24} + \frac{x}{3} = \frac{3x}{4} - \frac{x+7}{24}$, then the value of x is

Marks (4)

Q 41 If one-fourth of the sum of a number and seven is four less than three times the number, find the number.

Marks (4)

Q 42 Solve the equation 2x + 1 = x – 3, and represent the solution(s) on
(i) the number line,
(ii) the Cartesian plane.

Marks (5)

Q 43 Find two solutions for each of the following equations:

(i) $4x + 3y = 12$

(ii) $2x + 5y = 0$

(iii) $3y + 4 = 0$ Marks (6)

Most Important Questions

Q 1 Represent the linear equation in two variables in its standard form. 2y – 3 + 2x =5

Q 2 What is the value of a, b, c in the given equation 3x – 5= 2y

Q 3 Find the value of b and c in the equation 3x= 15

Q 4 Check whether (4,0) is a solution of the equation2x+3y =8

Q 5 Find if $\sqrt{2}$, -1 is a solution of the equation x + 3y =1

Q 6 Form an equation in two variables with the given information: the number of ducks is three more than three times number of hens, and the total of all hens and ducks is 156.

Q 7 Find four solutions of the given equations 3x –y=4

Q 8 Find the value of k, when x = -1 and y =2 in the equation 3x –7y = 3k .

Q 9 Find two solutions for each of the following equations:

(i) 4x + 3y =12

(ii) 2x + 5y = 0

Q 10 Express the following linear equations in the form ax + by + c = 0 and find the values of a , b, c.In the equation

$$x - \frac{1}{5}y = -9.\overline{35}.$$

Q 11 Write the following as linear equation in two variables.2x = 15 and –3y –4 =0

Q 12 Write five solutions of the given equation: $\pi$ x + y = 7.

Q 13 Write the four solutions of the equation (2x - 1)/(3y - 5) = 1/3.

Q 14 Write the solution of the equation x +y =4

Q 15 Lata and Gautami together contributed Rs. 100 for a donation camp. Represent this situation graphically.

Q 16 The taxi fare in a city is as follows: For the first km, the fare is Rs.8 and for every subsequent Km it is Rs. 5. Taking the distance traveled as x and the total fare as y, represent the equation graphically.

Q 17 Represent the equation 2 + 3y = 7x graphically.

Q 18 Form an equation for the statement: The sum of cost of pens and twice the cost of pencils is Rs. 6 and represent the situation graphically.

Q 19 Form the graph of the equation y = 2x

Q 20 Plot the graph of the equation y – 2x = 4

Q 21 Express y =4 as linear equation in two variables.

Q 22 Give the representation of 2x +9 =0 as an equation in

a) One variable

b) Two variable

Q 23 The temperature in degree Celsius is given by the following formula F = (9/5) C + 32

Answer the following questions

a. What will be the temperature in degree Celsius if the temperature is $45^{\circ}$ F?
b. If the temperature is $0^{\circ}$ C, what is the temperature in Fahrenheit?
c. Is there a temperature, which is numerically the same in both Fahrenheit and Celsius? If yes, find it.