QB365

Important Questions - Linear Equations in Two Variables

9th Standard CBSE

Mathematics Reg.No. :

Time : 01:00:00 Hrs

Total Marks : 50

Section-A

1) $\sqrt{2}y + \sqrt{3} = 0$ is **1**

(a) a linear equation in one variable (b) not a linear equation in one variable

(c) a linear equation in two variables (d) none of these

2) Write a, b, c for the equation 3y+4=0 **1**

(a) 0,3,4 (b) 3,0,4 (c) 4,0,3 (d) 4,3,0

3) The equation 2x=3 in two variables is of the form: **1**

(a) 2.x+3.y=0 (b) 2.x+0.y=3 (c) $\frac{2}{3}.x + 0.y = 3$ (d) 1.x+$\frac{2}{3}$.y=1

4) The salary of Dr.Harikisham is thrice the salary of Manish Goyal.Write a linear equation in two variables to represent the statement. **1**

(a) x=3 (b) x+3y=0 (c) x=3y+3 (d) x=y+3

5) A point on the line x+y=0 is **1**

(a) (1,1) (b) (1,-1) (c) (0,1) (d) (1,0)

6) The line y=mx passes through **1**

(a) origin (b) (1,1) (c) (m, 1) (d) (-1,_1)

7) Find the value of k if (4, 1) is a solution of 3x+2y=k **1**

(a) 14 (b) 12 (c) 10 (d) 16

8) How many linear equations in x and y can be satisfied by x = 1 and y = 2? **1**

(a) only one (b) two (c) infinitely (d) three

9) Any point of the form (q, -q) always lie on the graph of the equation: **1**

(a) x=-a (b) y=a (c) y=x (d) x+y=0

10) The graph of y=6 is a line: **1**

(a) parallel to x-axis at a distance 6 units from the origin

(b) parallel to y-axis at a distance 6 units from the origin (c) passing through the point (6,0)

(d) passing through the origin

Section-B

11) Write the following as an equation in two variables: **2**

x=-5

12) Find the value of a so that the following equation may have x=1, y=1 as a solution 3x+ay=6 **2**

13) Draw the graph of the linear equation y = m.x + c for m = 2 and c = 1. Read from the graph the value of y when x = $\frac{3}{2}$ **2**

14) The taxi fare in a city is as follows: for the first kilometer, the fare is Rs.10 and for the subsequent distance it is Rs.6 per km. Taking the distance covered as x km and total fare as Rs.y, write a linear equation for this information, and draw its graph. **2**

15) Express the following linear equation in the form ax+by+c=0 and indicate the values of a, b and c in each case: y-2=0 **2**

16) Check which of the following are solutions of equation x-2y=4 and which are not: **2**
$(\sqrt{2}, 4\sqrt{2})$

17) Write 3 different solutions of 2x +y = **2**

18) Water is following into a water tank at the rate of 10cm^3 /sec.If the volume of water collected in t seconds is V cm^3, write a linear equation to represent the above statement.Draw a graph of the linear equation. **2**

19) Let y vary directly as x.If y=12 when x=4, then write a linear equation.Draw the graph of this linear equation.Check if the point (5, 15) lies on the graph. **2**

20) Express the following statement as a linear equation in two variables by taking present ages (in years) of father and son as x and y, respectively.Age of father 5 years ago was two years ago was teo years more than 7 times the age of his son at that time. **2**

Section-C

21) Find the value of 'm' if (-m, 3) is a solution of equation 4x+9y-3=0 **5**

22) Determine the point on the graph of the equation 2x+5y=20 where x-coordinate is $\frac{5}{2}$ times its ordinate. **5**

23) Draw the graph of the equations x = 3 and 4x = 3y in the same graph.Find the area of the triangle formed by these two lines and the x-axis **5**

24) Give the equations of two lines passing through (1, 2). How many more such lines are there and why? **5**

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Section-A

1) (a) a linear equation in one variable **1**

2) (a) 0,3,4 **1**

3) (b) 2.x+0.y=3 **1**

4) (a) x=3 **1**

5) (b) (1,-1) **1**

6) (a) origin **1**

7) (a) 14 **1**

8) (c) infinitely **1**

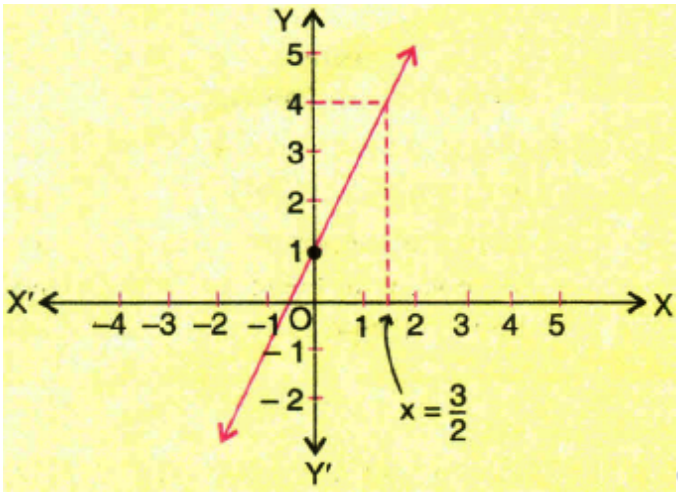
9) (d) x+y=0 **1**

10) (a) parallel to x-axis at a distance 6 units from the origin **1**

Section-B

11) 1x+0y+5=0 **2**

12) 3 **2**

13) 

2

Ans: 4

14) y=10+6(x-1) ⇒ y=4+6x **2**

15) y-2=0 ⇒ 0.x+1.y-2=0 **2**

Comparing with ax+by+c=0, we get

a=0,b=1,c=-2

16) The given equation is x-2y=4 **2**

Put $x = \sqrt{2}$, y=$4\sqrt{2}$ in (1), we get

x-2y=$\sqrt{2} - 2(4\sqrt{2})$

$= \sqrt{2} - 8\sqrt{2} = -7\sqrt{2}$ which is not 4.

$(\sqrt{2},\ 4\sqrt{2})$ which is not 4.

$(\sqrt{2}, 4\sqrt{2})$ is not a soluton of (1)

17) (0,0), (1,-2), (2, -4) **2**

18) V=10t **2**

19) y=3x; Yes **2**

20) Let the present ages of father and son be x years and y year respectively. **2**

Then, Age of father 5 years ago =(x-5)years

Age of his son 5 years ago(y-5) years

According to the question,

x-5=7(y-5)+2

x-y=7y-35+2

x-7y+28=0

which is the required linear equation in two variables.

Section-C

21) if(-m, 3) is a solution of the equation **5**

4x+9y-3=0, then

4(-m)+9(3)-3=0

$\Rightarrow$ -4m+27-3=0

$\Rightarrow$ -4m+24=0

$\Rightarrow$ 4m=24

$\Rightarrow m = \frac{24}{4} = 6$

22) 2x+5y=20 **5**

$x = \frac{5}{2}y$

$\therefore \ 2\left(\frac{5}{2}, y\right) + 5y = 20$

$\Rightarrow$ 10y=20

$\Rightarrow$ y=2

$\therefore \ x = \frac{5}{2}(2) = 5$

Hence the required point is (5, 2).

23) **5**

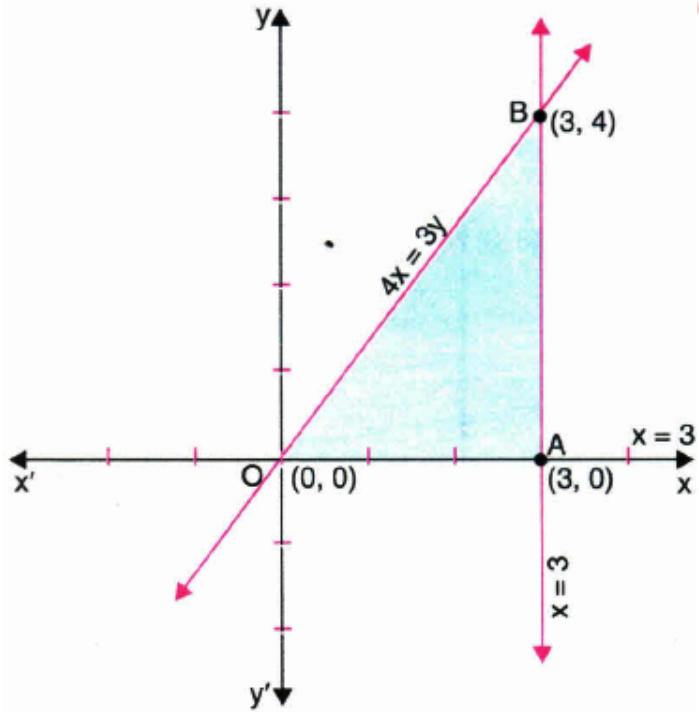
x = 3 represents a line parallel to y-axis at a distance of 3 units to the right of the origin.

4x= 3y

$\Rightarrow \quad y = \frac{4x}{3}$ **Table of solution**

x	0	3
y	0	4

We plot the points (0,0) and (3, 4) on a graph paper and join the same by a ruler to get the line which is the graph of the equation 4x = 3y.



Area of the triangle GAB formed by the given two lines and the x-axis $= \frac{3\times4}{2} = 6$ square units

24)

Two lines passing through (1, 2) are

x+y=3 .....(1)

and y=2x .....(2)

Infinitely many more such lines can be found because the general equation of a line is ax + by + c = O.For a given point (x, y) through which the line passes and for an arbitrary pair of values of a and b, c can be determined so as to satisfy ax + by + c = O. This holds good for each given point and each arbitrary pair of values of a and b. Hence, infinitely many lines can be found passing through a given point.