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NAME:

SECOND TERM

MATHEMATICS WORKSHEET I– LINEAR EQUATION IN TWO VARIABLES

Don't forget:

- An equation of the form *ax + by + c = 0*, where *a, b and c* are real numbers, such that *a ≠ 0, b ≠ 0* is called a *linear equation in two variables*.
- Any pair of values of *x* and *y* which satisfies the equation *ax + by + c = 0* is called a *solution* of it.
- A linear equation in two variables has *infinitely* many solutions.
- The graph of every linear equation in two variables is a *straight line.*
- Every point on the graph of a linear equation in two variables is a *solution* of the linear equation.

1. Write a linear equation to represent the following statements:
   a).The cost of three apples and two mangoes is ₹48.
   b). Number of students in section A exceeds that in section B by 42.
   c). Cost of two bats is same as cost of seven balls.
   d). Present age of a girl is two-fifth age of her father.
2. Sum of two numbers is 100. Write a linear equation to represent this statement and draw its graph. If one number is 25, using the graph, find the other.
3. Present age of the father is one year more than four times the age of his son. Write a linear equation to represent this statement and draw a graph to represent it. Answer the following using the graph:
   i). If son is 11 years old, what is the age of father.
   ii). If father is 49 years old, what is the age of son.
4. Draw a square whose sides are represented by x=4, x=-4, y=4 and y=-4.
5. Draw a triangle whose sides are represented by x=0, y=0 and x + y=3.
6. Find three solutions of 5*x*-*y*+6=0 after reducing it to *y* = m*x* + c form.
7. For what value of *p*, the linear equation 2*x*+py=8 has equal values of *x* and *y* for its solution.

8. Show that the points A(1, 2), B(-1,-16), and C(0,-7) lie on the graph of the linear equation $y = 9x-7$.
9. 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 6kg. Read from the graph, the force required when the acceleration produced is (i) 5m/sec^2. (ii) 6m/sec^2.
10. Show that $x=1, y=4$ satisfy the linear equation $2x + y – 6 = 0.$
11. Find out which of the following equations have x =3, y =2 as a solution.

    (i). $5y – x = 7.$ *(ii).* $y + 2x = 3.$ *(iii).* $3y – 5x = -9.$
12. Find the value of k, if x = -1, y = -1 is a solution of the equation $2x – ky = 9.$
13. If $x = 2k -1$ and $y = k$ is a solution of the equation 3x – 5y = 7, find the value of k.
14. Find the value of p, if $x = -p$ and $y = 3$ is a solution of the equation $2x + 9y – 13 = 0.$
15. Find the value of k, if $x = -2$ and $y = 2$ is a solution of the equation $x + 3y = k/2.$
16. Draw the graph of $2x + 3y = 5$ and determine from the graph whether $x = 7, y = -3$ and $x = 6, y = -2$ are solution of the given equation.
17. Use the table given below to draw the graph. Use the graph to find the values of p and q. State the linear relation between x and y.

x	-2	0	2	1	P
y	-3	1	q	3	-7

18. Express y in terms of x, it being given that $3x – 2y + 12 = 0.$ Find the points where the line represented by this equation cuts the x- axis and y-axis.
19. The graph of a linear equation passes through the points (-1, 4) and (2, 1). Find the values of p and q if the graph also passes through $(p, 3)$ and $(1, q)$.
20. Draw the graph of $y = |x| +2.$
21. Give the geometric representation of $x + 5 = 5x – 7$ as an equation :

    (i). in one variable. (ii). in two variable.
22. Draw the graph of the equation represented by a straight line which is parallel to the x-axis and at a distance of 4 units below it.
23. Express x in terms of y, given that $3x + 4y = 6.$ Check whether the point (3, 2) is on the given line.
24. Check by substituting whether $x= -6$ and $y =-3$ is a solution of $2(x -1) – 5y = 1.$ Find one more solution.
25. Find four solution of the following linear equation in two variable:

    $2(x + 3) – 3(y + 1) = 0.$
26. Find three solution of the equation:$2x + 3(y – 1)= 13$. How many solutions this equations has?
27. Which of the following is the solution of the equation $3x + 2y = 10.$

    (i). (2, 2) (ii). (0, 5) (iii). (1, 3).

28. Draw the graph of $2x + 3y = 1$, and verify from the graph whether $x = 5$, $y = -3$ is a solution or not. Give reason in support of your answer.
29. Express x in terms of y, it is being given that $7x – 3y = 15$. Check if the line represented by the given equation intersects the y-axis at $y = -5$.
30. Express the following equations in the form $ax + by + c = 0$ and indicate the values of a, b and c.

(i). $5x = -y$ (ii). $y = -4x$.

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