SUB- MATHEMATICS, CLASS-IX
CHAPTER -LINEAR EQUATION IN TWO VARIABLES
WORKSHEET (HOTS)

Q.1: 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) $x – y/5 – 10 = 0$ 　　　　　　(ii) $y – 2 = 0$

Q.2: Draw the graph of each of the following linear equations in two variables:

(i) $y = 3x$ 　　　　　　(ii) $3 = 2x + y$

Q.3: If the point (3, 4) lies on the graph of the equation $3y = ax + 7$, find the value of a.

Q.4: Show that the points A (1, 2), B (– 1, – 16) and C (0, – 7) lie on the graph of the linear equation $y = 9x – 7$.

Q.5: Find m, if point (7,-3)lies on the equation $(y-3/7)=m(x-2/7)$.

Q.6: A fraction becomes 1/3 ,if 2 is added to both numerator and denominator. If 3 is added to both numerator and denominator it becomes 2/5. Assuming the original fraction to be x/y,form a pair of linear equations in two variables for the problem.

Q.7: Draw the graph of the linear equation $y=mx+c$ for $m=1/2$ and $c=3/2$ .Read from the graph ,the value of x ,when y=4.5.

Q.8: Draw the graph of the linear equation $3x + 4y = 6$. At what points, the graph cuts x and y-axis?

Q.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:2 units 　　and 　0 unit.

Q.10: 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 Rs5 per km. Taking the distance covered as x km and total fare as Rsy, write a linear equation for this information, and draw its graph.

Q.11: Write the linear equation such that each point on its graph has an ordinate 3 times its abscissa.

Q.12: Give the geometric representations of $2x+9 = 0$ as an equation:

a)in one variable   b)in two variables

Q.13:.Raj tells his daughter Aarv, 'Seven years ago, I was seven times as old as you were then also, three years from now, I shall be three times as old as you will be.' If the present ages of Aarv and Raj are x and y years respectively, represent this situation algebraically as well as graphically.

Q.14:.A and B are friends. A is elder to B by 5 years. B's sister C is half the age of B while A's father D is 8 years older than twice the age of B. If the present age of D is 48 years, find the present ages of A, B and C.

Q.15: The parking charge for vehicles in super Delhi Metro is Rs 20 for first two hrs and Rs. 10 for subsequent hr. Assume total parking time to be x hrs. (where $x \geq 2$) and total parking charge as y. Write the linear equation for above relation and draw graph. Find the parking charges for 5 hrs from Graph

Q.16.Thrice the cost of a kettle is equal to five times the cost of an oven. Write a linear equation in two variables to represent this statement.

Q.17: Draw the graph of the equation $y = mx + c$ for $m = 3$ and $c = -1$ (a straight line in Cartesian plane). Read from the graph the value of y when $x = 2$.

Q.18: If x is the number of hours a labourer is on work and y is his wages in rupees, then $y = 4x + 3$. Draw the work wages graph of this equation. From the graph, find the wages of a labourer who puts in 4 hours of work.

Q.19: Ram is half of his father's age. Twenty years ago the age of father was six times age of Ram. Find the present ages of Ram and his father.

Q.20: Find the coordinates of the points where the line represented by the linear equation y=2x-4 intersects x-axis and y-axis.