

LINEAR EQUATION IN TWO VARIABLES

1. Any point on the $y = x$ is of the form
(a) (a, a) (b) $(0, a)$ (c) $(a, 0)$ (d) $(a, -a)$
2. The equation of x -axis is of the form
(a) $x = 0$ (b) $y = 0$ (c) $x + y = 0$ (d) $x = y$
3. Graph of $y = 6$ is a line:
(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) making an intercept 6 on the x -axis.
(d) making an intercept 6 on both the axes.
4. $x=5, y=2$ is a solution of the linear equation
(a) $x + 2y = 7$ (b) $5x + 2y = 7$ (c) $x + y = 7$ (d) $5x + y = 7$
5. If a linear equation has solutions $(-2, 2)$, $(0, 0)$ and $(2, -2)$, then its is of the form
(a) $y - x = 0$ (b) $x + y = 0$ (c) $-2x + y = 0$ (d) $-x + 2y = 0$
6. The positive solutions of the equation $ax + by + c = 0$ always lie in the
(a) 1st quadrant (b) 2nd quadrant (c) 3rd quadrant (d) 4th quadrant
7. The graph of the linear equation $2x + 3y = 6$ is a line which meets the x axis at the point
(a) $(2, 0)$ (b) $(0, 3)$ (c) $(3, 0)$ (d) $(0, 2)$
8. The graph of the $y = x$ passes through the point
(a) $\left(\frac{3}{2}, -\frac{3}{2}\right)$ (b) $\left(0, \frac{3}{2}\right)$ (c) $(1, 1)$ (d) $\left(\frac{-1}{2}, \frac{1}{2}\right)$
9. If we multiply or divide both sides of a linear equation with a non-zero number, then the solution of the linear equation:
(a) changes (b) remains the same
(c) changes in case of multiplication only (d) changes in case of division only
10. How many linear equation in x and y can be satisfied by $x = 1$ and $y = 2$?
(a) only one (b) two (c) infinitely many (d) three
11. The point of the form (a, a) always lies on:
(a) x - axis (b) y - axis (c) on the line $y = x$ (d) on the $x + y = 0$
12. The point of the form $(a, -a)$ always lies on:
(a) $x = a$ (b) $y = -a$ (c) $y = x$ (d) $x + y = 0$

LINEAR EQUATION IN TWO VARIABLES

1. Which of the following is not a linear equation in two variables?
(a) $ax + by = c$ (b) $ax^2 + by = c$ (c) $2x + 3y = 5$ (d) $3x + 2y = 6$
 2. The graph of $ax + by + c = 0$ is
(a) a straight line parallel to x-axis (b) a straight line parallel to y-axis
(c) a general straight line (d) a line in the 2nd and 3rd quadrant
 3. The solution of a linear equation in two variables is
(a) a number which satisfies the given equation
(b) an ordered pair which satisfies the given equation
(c) an ordered pair, whose respective values when substituted for x and y in the given equation, satisfies it
(d) none of these
 4. One of the solution of a linear equation in two variables is
(a) (3, 2) (b) (3, -2) (c) (2, 3) (d) (-2, -3)
 5. The ordered pair (m, n) satisfies the equation $ax + by + c = 0$ if
(a) $am + bn = 0$ (b) $c = 0$ (c) $am + bn + c = 0$ (d) $am + bn - c = 0$
 6. The equation of x – axis is
(a) $a = 0$ (b) $y = 0$ (c) $x = 0$ (d) $y = k$
 7. From the graph of a line, we can find the coordinates of
(a) only two point lying on the line
(b) only two points only lying on the line.
(c) only finite number of points lying on the line.
(d) only infinite number of points lying on the line.
 8. A linear equation in two variables has
(a) no solution (b) only one solution (c) only two solutions (d) infinitely many solutions
 9. An equation of the form $ax + by + c = 0$ represents a linear equation in two variables, if
(a) $a = 0, b \neq 0$ (b) $a \neq 0, b = 0$ (c) $a = 0, b = 0$ (d) $a = 0, b \neq 0$
 10. The graph of the linear equation in two variables $y = mx$ is
(a) a line parallel to x – axis (b) a line parallel to y – axis
(c) a line passing through the origin (d) not a straight line
-

- 23.** 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 .
- 24.** 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 the liquid is 313°K .
(ii) If the temperature is 158°F , then find the temperature in Kelvin.
- 25.** The linear equation that converts Fahrenheit (F) to Celsius (C) is given by the relation $C = \frac{5F - 160}{9}$
- (i) If the temperature is 86°F , what is the temperature in Celsius?
(ii) If the temperature is 35°C , what is the temperature in Fahrenheit?
(iii) If the temperature is 0°C what is the temperature in Fahrenheit and if the temperature is 0°F , what is the temperature in Celsius?
(iv) What is the numerical value of the temperature which is same in both the scales?
- 26.** Draw the graph of $x + y = 7$ and $x - y = 2$ on the same graph.
- 27.** If the point (3, 4) lies on the graph of the equation $3y = ax + 7$, find the value of a .
- 28.** 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 x km and total fare as Rs y , write a linear equation for this information, and draw its graph.

- 29.** Solve the equation $2x + 1 = x - 3$, and represent the solution(s) on
(i) the number line,
(ii) the Cartesian plane.
- 30.** Give the geometric representations of $y = 3$ as an equation
(i) in one variable (ii) in two variables
- 31.** Give the geometric representations of $2x + 9 = 0$ as an equation
(i) in one variable (ii) in two variables
- 32.** The force applied on a body is directly proportional to the acceleration produced in the body. Write an equation to express this situation and plot the graph of the equation.
- 33.** Draw the graphs of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determine the coordinates of the vertices of the triangle formed by these lines and the x -axis, and shade the triangular region.
- 34.** Draw the graphs of the equations $y = x$ and $y = -x$ in the same graph paper. Find the coordinates of the point where two lines intersect.
- 35.** Draw the graphs of the equations $3x - 2y = 4$ and $x + y - 3 = 0$ in the same graph paper. Find the coordinates of the point where two lines intersect.
- 36.** Draw the graphs of the equations $3x - 2y + 6 = 0$ and $x + 2y - 6 = 0$ in the same graph paper. Find the area of triangle formed by the two lines and x - axis.
- 37.** If the number of hours for which a labourer works is x and y are his wages (in rupees) and $y = 2x - 1$, draw the graph of work - wages equation. From the graph, find the wages of the labourer if he works for 6 hours.
- 38.** 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.
- 39.** A three-wheeler scoter charges Rs. 10 for the first km and Rs. 4.50 each for every subsequent km. For a distance of x km, an amount of Rs. Y is paid. Write the linear equation representing the above information.