

## LINEAR EQUATIONS IN TWO VARIABLES

CLASS IX

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- 1 Check whether the equation  $x(x + 2) - x^2 + y(y - 3) - y^2 = 0$  is an equation of linear equation in 2 variables or not.
- 2 Express the following linear equations in the form  $ax + by + c = 0$  and indicate the value of  $a$ ,  $b$  and  $c$  in each case:  
(i)  $3x + 4y = 5$  (ii)  $3x = \frac{8}{3}y + 10$  (iii)  $5y = 10x - 7$   
(iv)  $2x + 8 = 11y$  (v)  $x = 5y$  (vi)  $\frac{3}{5}x = 2y$   
(vii)  $8x = 7$  (viii)  $4y = \frac{8}{3}$  (ix)  $5 = 6y$  (x)  $12 = \frac{5}{2}x$
- 3 Find  $a$ , if linear equation  $3x - ay = 6$  has one solution as  $(4, 3)$ .
- 4 Find the value of  $b$ , if  $x = 5$ ,  $y = 0$  is a solution of the equation  $3x + 5y = b$ .
- 5 For what value of  $k$ ,  $x = 2$  and  $y = -1$  is a solution of  $x + 3y - k = 0$ .
- 6 If a line represented by the equation  $3x + \alpha y = 8$  passes through  $(1, 1)$ , then find the value of  $\alpha$ .
- 7 Find the value of  $\alpha$ , so that  $x = 1$  and  $y = 1$  is a solution of the equation  $5\alpha x + 30\alpha y = 70$ .
- 8 If  $(2, 0)$  is a solution of the linear equation  $2x + 3y = k$ , then find the value of  $k$ .
- 9 Is the point  $(0, 3)$  lie on the graph of the linear equation  $3x + 4y = 12$ ?
- 10 At what point the graph of the linear equation  $x + y = 5$  cuts the  $x$ -axis?
- 11 At what point the graph of the linear equation  $2x - y = 7$  cuts the  $y$ -axis.
- 12 Express  $2x = 5y$  in the form  $ax + by + c = 0$
- 13 Tell whether the equation  $y(y + 3) - y^2 + 4x + 8 = 0$  is an equation of linear equation in 2 variables or not
- 14 Express  $-5y = 8x + 2$  in the form  $ax + by + c = 0$  also find  $a$ ,  $b$  and  $c$ .
- 15 Find  $b$ , if linear equation  $3bx - y = 9$  has one solution as  $(3, 3)$ .
- 16 How many solution(s) of the linear equation  $2x + 3y = 18$  has?
- 17 Find the value of  $k$ , if the line  $3kx = 5 + 2y$ , will pass through: (i)  $(1, 1)$  (ii)  $(1, 2)$  (iii)  $(2, 1)$
- 18 Side of an equilateral triangle is  $x$ . If the perimeter is 30 cm, find the value of  $x$ .
- 19 Is the point  $(2, 1)$  lie on the graph of the linear equation  $5x + 15y = 19$ ?
- 20 Is the point  $(3, 0)$  lie on the graph of the linear equation  $5x - y = 15$ ?
- 21 The cost of a pen is three times the cost of a pencil. Write a linear equation in two variables to represent this statement.  
(Take the cost of a pen to be Rs.  $x$  and that of a pencil to be Rs.  $y$ )
- 22 Age of  $x$  is more than the age of  $y$  by 10 years. Express this statement in linear equation.
- 23 Write the linear equation such that each point on its graph has an ordinate 3 times its abscissa.
- 24 When a number is divided by another number, the quotient and remainder obtained are 9 and 1 respectively. Express this information in linear equation.
- 25 The sum of a two-digit number and the number obtained by reversing the order of its digits is 88. Express this information in linear equation.
- 26 Write a linear equation on which the point of the form  $(a, -a)$  always lies.
- 27 Find two solutions for the equation  $4x + 3y = 24$ . How many solutions of this equation are possible?
- 28 . Write  $3x + 2y = 18$  in the form of  $y = mx + c$ . Find the value of  $m$  and  $c$ . Is  $(4, 3)$  lies on this linear equation?

- 29 Find the value of  $a$  and  $b$ , if the line  $6bx + ay = 24$  passes through  $(2, 0)$  and  $(0, 2)$ .
- 30 Check whether the equation  $(x - 5)x + 6y - x^2 = 0$  is an equation of the form  $ax + by + c = 0$  or not.
- 31 Age of  $x$  is less than the age of  $y$  by 5 years. Express this statement in linear equation.
- 32 The cost of a notebook is 5 times the cost of a calendar. Write a linear equation in two variables to represent this statement.
- 33 Write the linear equation if each point on its graph has an abscissa 2 times its ordinate
- 34 Write a linear equation on which the point of the form  $(-b, b)$  always lies.
- 35 If  $x$  years represents the present age of the father and  $y$  years represents the present age of the son, then find the equation of the statement "present age of the father is 5 more than 6 times age of the son".
- 36 Find the two solutions for the equation  $3x - 4y = 12$ . How many solutions of this equation are possible?
- 37 Find the value of  $a$  and  $b$ , if the lines  $2ax + 7by = 14$  and  $3ax - 7by = 6$  pass through  $(2, 1)$ .
- 38 Find the value of  $a$ , if the line  $3y = ax + 7$ , will pass through:  
(i)  $(3, 4)$ , (ii)  $(1, 2)$ , (iii)  $(2, -3)$
- 39 Show that the points A  $(1, 2)$ , B  $(-1, -16)$  and C  $(0, -7)$  lie on the graph of the linear equation  $y = 9x - 7$ .
- 40 Determine the point on the line of linear equation  $2x + 5y = 20$  whose  $x$ -coordinate is  $\frac{5}{2}$  times its ordinate.
- 41 For what value of  $p$ ;  $x = 2$ ,  $y = 3$  is a solution of  $(p + 1)x - (2p + 3)y - 1 = 0$ ?  
(i) Write the equation.  
(ii) How many solutions of this equation are possible?  
(iii) Is this line passes through the point  $(-2, 3)$ ? Give justification.
- 42 (i) If the point  $(4, 3)$  lies on the linear equation  $3x - ay = 6$ , find whether  $(-2, -6)$  also lies on the same line? (ii) Find the coordinate of the point lies on above line  
(a) abscissa is zero (b) ordinate is zero
- 43 The equation  $x = 5$  in two variables can be written as  
(A)  $1.x + 1.y = 5$  (B)  $0.x + 1.y = 5$  (C)  $0.x + 0.y = 5$  (D)  $1.x + 0.y = 5$
- 44 The linear equation  $3y - 5 = 0$ , represented as  $ax + by + c = 0$ , has (a) a unique solution (b) infinitely many solutions (c) two solutions (d) no solution
- 45  $x = 5$ ,  $y = -2$  is a solution of the linear equation  
(A)  $2x + y = 9$  (B)  $2x - y = 12$  (C)  $x + 3y = 1$  (D)  $x + 3y = 0$
- 46 Let  $y$  varies directly as  $x$ . If  $y = 24$ , when  $x = 8$ , then the linear equation is  
(A)  $3y = x$  (B)  $y = x$  (C)  $y = 4x$  (D)  $y = 3x$
- 47 If the linear equation has solutions  $(-3, 3)$ ,  $(0, 0)$ ,  $(3, -3)$ , then equation is  
(A)  $x - y = 0$  (B)  $x + y = 0$  (C)  $2x - y = 0$  (D)  $x + 2y = 0$
- 48 If point  $(3, 0)$  lies on the graph of the equation  $2x + 3y = k$ , then the value of  $k$  is  
(A) 6 (B) 3 (C) 2 (D) 5
- 49 The graph of the linear equation  $3x + 5y = 15$  cuts the  $x$ -axis at the point  
(A)  $(5, 0)$  (B)  $(3, 0)$  (C)  $(0, 5)$  (D)  $(0, 3)$
- 50 For one of the solutions of the equation  $ax + by + c = 0$ ,  $x$  is negative and  $y$  is positive then surely a portion of line lies in the  
(A) first quadrant (B) second quadrant (C) third quadrant (D) fourth quadrant
- 51 How many linear equations in  $x$  and  $y$  can be satisfied by  $x = 1$  and  $y = 2$ ?  
(A) Only one (B) Two (C) Infinitely many (D) Three
- 52 Any point on the line  $y = x$  is of the form  
(A)  $(a, a)$  (B)  $(0, a)$  (C)  $(a, 0)$  (D)  $(a, -a)$

- 53 The graph of the equation  $y = 4x - 3$  passes through the origin.  
(A) False (B) True
- 54 The graph of  $x = \pm a$  is a straight line parallel to the (a) x-axis (b) y-axis (c) line  $y = x$  (d) line  $x + y = 0$
- 55 Any solution of the linear equation  $2x + 0y = 9$  in two variables, is of the form \_\_\_\_\_
- A)  $\left(\frac{5}{2}, 0\right)$  B)  $\left(\frac{9}{2}, n\right)$  C)  $\left(n, \frac{9}{2}\right)$  D)  $\left(0, \frac{9}{2}\right)$
- 56 The equation of x-axis is of the form  
(A)  $x = 0$  (B)  $y = 0$  (C)  $x + y = 0$  (D)  $x = y$
- 57 The point on the graph of the equation  $2x + 5y = 20$ , where x-coordinate is  $\frac{5}{2}$ , is \_\_\_\_\_
- A)  $\left(3, \frac{5}{2}\right)$  B)  $\left(\frac{5}{2}, \frac{5}{2}\right)$  C)  $\left(\frac{5}{2}, 0\right)$  D)  $\left(\frac{5}{2}, 3\right)$
- 58 The solution of the linear equation  $x + 2y = 8$  which represents a point on x-axis is  $(0, 4)$ .  
(A) True (B) False
- 59 The equation  $2x + 5y = 7$  has a unique solution, if x, y are  
(A) Natural numbers (B) Positive real numbers (C) Real numbers (D) Rational numbers
- 60 The graph of the linear equation  $y = 2x$  passes through the point  
(A)  $(2, 1)$  (B)  $(2, -1)$  (C)  $\left(\frac{3}{2}, -3\right)$  (D)  $\left(\frac{3}{2}, 3\right)$

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