

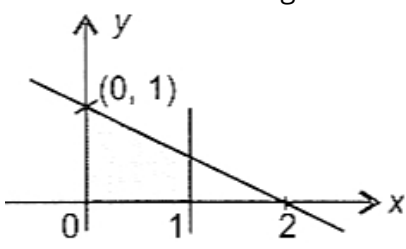
## DEVESH TEDIA CLASSES

Above muthoot finance bank, awadhpuri, bhopal

### D.T.CLASSES

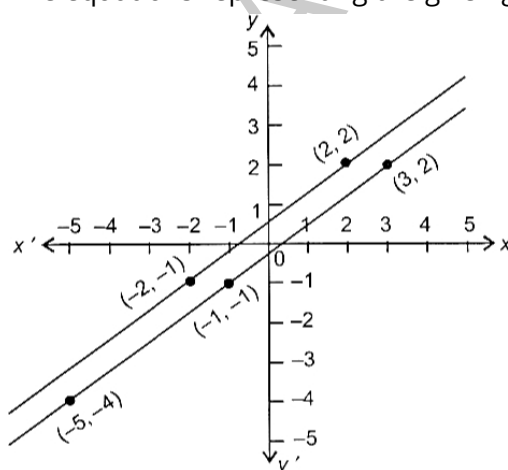
#### Class 09 - Mathematics

##### Section A

1. How many lines pass through one point? [1]
  - a) many
  - b) one
  - c) three
  - d) two
2. In the given rectangular coordinate system, the shaded region is bounded by two straight lines. Which of the following is not an equation of one of the boundary lines? [1]
  - a)  $x - y = 0$
  - b)  $x + 2y = 2$
  - c)  $x = 0$
  - d)  $x = 1$
3. The pair of linear equations  $5x + 4y = 20$  and  $10x + 8y = 16$  has: [1]
  - a) infinite number of solutions
  - b) no solution
  - c) two solutions
  - d) a unique solution
4. If  $x = 3$  and  $y = -2$  satisfies  $5x - y = k$ , then the value of  $k$  is [1]
  - a) -2
  - b) 17
  - c) 12
  - d) 3
5. The value of  $k$  for which the equations  $3x - y + 8 = 0$  and  $6x - ky + 16 = 0$  represent coincident lines is: [1]
  - a)  $-\frac{1}{2}$
  - b) -2
  - c) 2
  - d)  $\frac{1}{2}$
6. The point on the graph of the linear equation  $2x + 5y = 19$ , whose ordinate is  $1\frac{1}{2}$  times its abscissa is [1]
  - a) (2, 3)
  - b) (-4, -6)
  - c) (4, 6)
  - d) (-2, -3)
7. The graph of the line  $y = 3$  passes through the point [1]
  - a) (2, 3)
  - b) (3, 2)
  - c) (0, 3)
  - d) (3, 0)

8. If (4, 19) is a solution of the equation  $y = ax + 3$ , then  $a =$  [1]  
 a) 4 b) 5  
 c) 6 d) 3
9. The value of  $k$  if  $x = 3$  and  $y = -2$  is a solution of the equation  $2x - 13y = k$  is [1]  
 a) 32 b) 23  
 c) 31 d) 30
10. Express 'x' in terms of 'y' in the equation  $2x - 3y - 5 = 0$ . [1]  
 a)  $x = \frac{5-3y}{2}$  b)  $x = \frac{3+5y}{2}$   
 c)  $x = \frac{3y+5}{2}$  d)  $x = \frac{3y-5}{2}$
11. The graph of the linear equation  $x - y = 0$  passes through the point [1]  
 a)  $(\frac{1}{2}, \frac{1}{2})$  b) (0, 1)  
 c)  $(\frac{1}{2}, -\frac{1}{2})$  d) (-1, 1)
12. How many linear equations are satisfied by  $x = 2$  and  $y = -3$ ? [1]  
 a) Infinitely many b) Three  
 c) Two d) Only one
13. If a linear equation has solutions (-2, 2), (0, 0) and (2, -2), then it is of the form: [1]  
 a)  $-x + 2y = 0$  b)  $x - y = 0$   
 c)  $-2x + y = 0$  d)  $x + y = 0$
14. The graph of the linear equation  $2x + 3y = 6$  meets the y-axis at the point. [1]  
 a) (0, 3) b) (3, 0)  
 c) (2, 0) d) (0, 2)
15. The equation  $y = 2x - 7$  has [1]  
 a) many solutions b) no solution  
 c) one solution d) two solutions
16. Which of the following is not a solution of  $2x - 3y = 12$ ? [1]  
 a) (6, 0) b) (3, -2)  
 c) (0, -4) d) (2, 3)
17. The graph of the line  $y = -3$  does not pass through the point. [1]  
 a) (2, -3) b) (-3, 2)  
 c) (3, -3) d) (0, -3)
18. The condition for which the pair of equations  $ax + 2y = 7$  and  $3x + by = 16$  represent parallel lines is: [1]  
 a)  $ab = 6$  b)  $ab = 3$   
 c)  $ab = 2$  d)  $ab = \frac{7}{16}$

19. The graph of the linear equation  $2x + 3y = 6$  cuts the y-axis at the point [1]  
 a) (0, 2) b) (3, 0)  
 c) (2, 0) d) (0, 3)
20. Any point on the line  $y = x$  is of the form [1]  
 a) (a, -a) b) (0, a)  
 c) (a, 0) d) (a, a)
21. If the graph of the equation  $4x + 3y = 12$  cuts the coordinate axes at A and B, then hypotenuse of right triangle AOB is of length [1]  
 a) 3 units b) 6 units  
 c) 4 units d) 5 units
22. The graph of the linear equation  $2x + 3y = 6$  is a line which meets the x-axis at the point [1]  
 a) (0,3) b) (2, 0)  
 c) (0, 2) d) (3,0)
23. For the equation  $5x - 7y = 35$ , if  $y = 5$ , then the value of 'x' is [1]  
 a) -12 b) 12  
 c) 14 d) -14
24. The area of the triangle formed by the line  $2x + 5y = 10$  and the co-ordinate axis is [1]  
 a) 10 sq. units b) 5 sq. units  
 c) 3 sq. units d) 4 sq. units
25. Any point on the y-axis is of the form [1]  
 a) (0, y) b) (x, 0)  
 c) (y, y) d) (x, y)
26. The equations representing the given graph is \_\_\_\_\_. [1]



- a)  $2x + 7y = 11$ ;  $5x + (35y/2) = 25$  b)  $3x - 7y = 10$ ;  $8y - 6x = 4$   
 c)  $3x - 4y = 1$ ;  $8y - 6x = 4$  d)  $7x + 2y = 11$ ;  $y - 2x = 3$
27. Which of the following point does not lie on the line  $y = 2x + 3$  [1]  
 a) (-5, -7) b) (3, 7)

- c) (3, 9) d) (-1, 1)
28. If the point (3,4) lies on the graph of  $3y = ax + 7$  then the value of a is [1]  
 a)  $\frac{2}{5}$  b)  $\frac{3}{5}$   
 c)  $\frac{5}{3}$  d)  $\frac{2}{7}$
29. A linear equation in two variables is of the form  $ax + by + c = 0$ , where [1]  
 a)  $a = 0$  and  $b = 0$  b)  $a = 0$  and  $b \neq 0$   
 c)  $a \neq 0$  and  $b \neq 0$  d)  $a \neq 0$  and  $b = 0$
30. If (2, 0) is a solution of the linear equation  $2x + 3y = k$ , then the value of k is [1]  
 a) 4 b) 5  
 c) 2 d) 6
31. Which of the following points lie on the line  $y = 3x - 4$ ? [1]  
 a) (3, 9) b) (5, 15)  
 c) (2, 2) d) (4, 12)
32. The point which lies on y-axis at a distance of 3 units in the negative direction of y-axis is [1]  
 a) (0, 3) b) (3, 0)  
 c) (-3, 0) d) (0, -3)
33. If a linear equation has solutions (1, 2), (-1, -16) and (0, -7), then it is of the form [1]  
 a)  $x - 9y = 7$  b)  $9x - y + 7 = 0$   
 c)  $y = 9x - 7$  d)  $x = 9y - 7$
34. If the graph of the equation  $3x + 5y = 15$  cuts the coordinate axes at P and Q, then hypotenuse of right triangle POQ is of length \_\_\_\_\_. [1]  
 a) 5 units b)  $\sqrt{34}$  units  
 c)  $\sqrt{24}$  units d)  $\sqrt{17}$  units
35. The cost of 2 kg of apples and 1 kg of grapes on a day was found to be ₹160. A linear equation in two variables to represent the above data is [1]  
 a)  $x + y = 160$  b)  $2x + y = 160$   
 c)  $2x - y = 160$  d)  $x - 2y = 160$
36.  $ax + by + c = 0$  does not represent an equation of line, if \_\_\_\_\_. [1]  
 a)  $b = c = 0, a \neq 0$  b)  $a = c = 0, b \neq 0$   
 c)  $c = 0, a \neq 0, b \neq 0$  d)  $a = b = 0$
37.  $x = 5$  and  $y = -2$  is the solution of the linear equation. [1]  
 a)  $2x - y = 12$  b)  $x + 3y = 1$   
 c)  $3x + y = 0$  d)  $2x + y = 9$
38.  $x = 2, y = 5$  is a solution of the linear equation [1]  
 a)  $x + y = 7$  b)  $5x + y = 7$

c)  $5x + 2y = 7$

d)  $x + 2y = 7$

39. How many linear equations can be satisfied by  $x = 2$  and  $y = 3$ ? [1]  
 a) three b) many  
 c) only one d) two
40. How many linear equations in 'x' and 'y' can be satisfied by  $x = 1, y = 2$ ? [1]  
 a) Three b) Infinitely many  
 c) Two d) Only one

### Section B

41. Give the equations of two lines passing through (4, -2). How many more such lines are there, and why? [2]
42. Express the linear equation  $x = 3y$  in the form  $ax + by + c = 0$  and indicate the value of a, b and c in case. [2]
43. The following values of x and y are thought to satisfy a linear equation : [2]
- |   |   |   |
|---|---|---|
| x | 1 | 2 |
| y | 1 | 3 |
44. The cost of a notebook is twice the cost of a pen. Write a linear equation in two variables to represent this statement. [2]  
 (Take the cost of a notebook to be ₹ x and that of a pen to be ₹ y).
45. Write four solutions of the equation:  $2x + y = 7$  [2]
46. Draw the graph of the equation:  $x = 5$  [2]
47. Determine the point on the graph of the linear equation  $2x + 5y = 19$ , whose ordinate is  $1\frac{1}{2}$  times its abscissa. [2]
48. Plot the points (3, 5) and (-1, 3) on a graph paper and verify that the straight line passing through these points also passes through the point (1, 4). [2]
49. Write four solutions of the equation:  $\pi x + y = 9$  [2]
50. Draw the graph of the equation:  $y + 5 = 0$  [2]

### Section C

51. Find solutions of the form  $x = a, y = 0$  and  $x = 0, y = b$  for the following pairs of equations. Do they have any common such solution? [3]  
 $3x + 2y = 6$  and  $5x + 2y = 10$
52. Find at least 3 solutions for the following linear equation in two variables: [3]  
 $2x + 3y = 4$
53. A family spends Rs. 500 monthly as a fixed amount on milk and extra milk costs Rs.20 per kg. Taking quantity of extra milk as x and total expenditure on milk as y. Write a linear equation and fill the table. [3]
- |   |   |      |   |
|---|---|------|---|
| x | 0 | -    | 2 |
| y | - | 1000 | - |
54. Draw the graphs of linear equations  $y = x$  and  $y = -x$  on the same cartesian plane. What do you observe? [3]

55. Plot the graph of each of the following equations using the same pair of axes : [3]
- $y = 2x + 3$
  - $y = 2x - \frac{3}{2}$
- iii.  $2x - y = 0$  are these lines parallel?
56. Write linear equation  $3x + 2y = 18$  in the form of  $ax + by + c = 0$ . Also write the values of  $a$ ,  $b$  and  $c$ . [3]  
Are  $(4, 3)$  and  $(1, 2)$  solution of this equation?
57. Draw the graph of the equation  $2x + y - 3 = 0$ . [3]
58. Find the solution of the linear equation  $x + 2y = 8$  which represents a point on [3]
- The  $x$ -axis
  - The  $y$ -axis
59. Draw the graph of the following linear equation in two variables:  $y = 3x$  [3]
60. Draw the graph of  $y - 3x = 9$ . [3]

### Section D

61. Read the following text carefully and answer the questions that follow: [4]

Peter, Kevin James, Reeta and Veena were students of Class 9th B at Govt Sr Sec School, Sector 5, Gurgaon.

Once the teacher told **Peter to think a number  $x$  and to Kevin to think another number  $y$**  so that the difference of the numbers is 10 ( $x > y$ ).

Now the teacher asked James to add double of Peter's number and that three times of Kevin's number, the total was found 120.

Reeta just entered in the class, she did not know any number.

The teacher said Reeta to form the 1st equation with two variables  $x$  and  $y$ .

Now Veena just entered the class so the teacher told her to form 2nd equation with two variables  $x$  and  $y$ .

Now teacher Told Reeta to find the values of  $x$  and  $y$ . Peter and kelvin were told to verify the numbers  $x$  and  $y$ .



- What are the equation formed by Reeta and Veena? (1)
- What was the equation formed by Veena? (1)
- Which number did Peter think? (2)

**OR**

Which number did Kelvin think? (2)

62. Read the following text carefully and answer the questions that follow: [4]

Rainwater harvesting system is a technology that collects and stores rainwater for human use.

Anup decided to do rainwater harvesting. He collected rainwater in the underground tank at the

rate of  $30 \text{ cm}^3/\text{sec}$ .



- i. What will be the equation formed if the volume of water collected in  $x$  seconds is taken as  $y \text{ cm}^3$ ? and also find amount of water collected in 2 hours? (1)
- ii. Write the equation in standard form. (1)
- iii. How much water will be collected in 60 sec? (2)

**OR**

How much time will it take to collect water in  $900 \text{ cm}^3$ ? (2)

63. A soap manufacturer makes fragrant and non-fragrant liquid soaps. The liquid soaps are filled in plastic bottles and packed in equal size cartons for transportation. Each carton contains 50 bottles. The mass of a full bottle of soap is 220 gm and that of a half-filled bottle is 120 gm. [4]

- i. What will be the mass (gm) of the empty bottle?
  - a. 10
  - b. 20
  - c. 100
  - d. 110
- ii. A carton contains both fragrant and non-fragrant liquid soap bottles.  
Write an equation representing the number of fragrant and non-fragrant bottles in the carton.
- iii. A carton is checked randomly. Which of the following cannot be the number of fragrant and nonfragrant liquid bottles in the carton?
  - a. (5, 45)
  - b. (15, 35)
  - c. (20, 30)
  - d. (30, 40)
- iv. The soap bottles are available in small and large sizes.  
A carton with 10 small and 40 large bottles weighs 10.8 kg. What is the mass of the carton with 50 large bottles?

64. **Read the following text carefully and answer the questions that follow:** [4]

Reeta was studying in the class 9th C of St. Surya Public school, Mehrauli, New Delhi-110030  
Once Ranjeet and his daughter Reeta were returning after attending teachers' parent meeting at Reeta's school. As the home of Ranjeet was close to the school so they were coming by walking.  
Reeta asked her father, "Daddy how old are you?"

Ranjeet said, "Sum of ages of both of us is 55 years, After 10 years my age will be double of you.



- i. What is the second equation formed? (1)
- ii. What is the present age of Reeta in years? (1)
- iii. What is the present age of Ranjeet in years? (2)

**OR**

If the ratio of age of Reeta and her mother is 3 : 7 then what is the age of Reeta's mother in years? (2)

65. **Read the following text carefully and answer the questions that follow:**

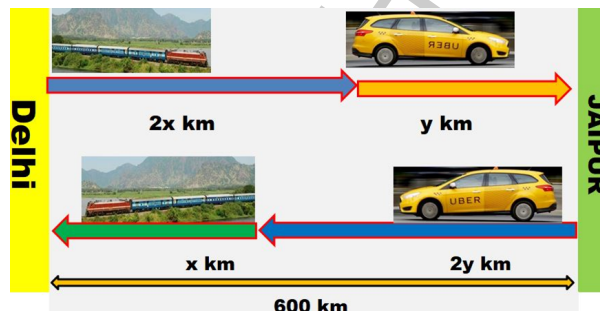
**[4]**

Ajay lives in Delhi, The city of Ajay's father in laws residence is at Jaipur is 600 km from Delhi. Ajay used to travel this 600 km partly by train and partly by car.

He used to buy cheap items from Delhi and sale at Jaipur and also buying cheap items from Jaipur and sale at Delhi.

Once From **Delhi to Jaipur** in forward journey he covered  $2x$  km by train and the rest  $y$  km by taxi.

But, while returning he did not get a reservation from Jaipur in the train. So first  $2y$  km he had to travel by taxi and the rest  $x$  km by Train. From Delhi to Jaipur he took 8 hrs but in returning it took 10 hrs.



- i. Write the above information in terms of equation. (1)
- ii. Find the value of  $x$  and  $y$ ? (1)
- iii. Find the speed of Taxi? (2)

**OR**

Find the speed of Train? (2)

### Section E

66. Two students A and B contributed ₹100 towards the Prime Minister's Relief Fund to help the earthquake victims. Write a linear equation to satisfy the above data and draw its graph.

**[5]**

67. Draw the graph of the equation  $2x + 3y = 11$ . From your graph, find the value of  $y$  when

**[5]**

- a.  $x = 7$
- b.  $x = -8$



68. A taxi charges ₹20 for the first kilometre and @ ₹12 per km for subsequent distance covered. [5]  
Taking the total distance covered as  $x$  km and total fare ₹  $y$ , write a linear equation depicting the relation between  $x$  and  $y$ . Draw the graph between  $x$  and  $y$ . From your graph, find the taxi charges for covering  
i. 12 km  
ii. 20 km.
69. Draw the graph of the equation  $3x + 4y = 12$  and find the co-ordinates of the points of [5]  
intersection of the equation with the co-ordinate axes.
70. The auto-rickshaw fare in a city is charged as Rs.10 for the first kilometre and Rs. 4 per kilometre [5]  
for subsequent distance covered. Write the linear equation to express the above statement.  
Draw the graph of linear equation.
71. Draw the graph for each of the equations  $x + y = 6$  and  $x - y = 2$  on the same graph paper and [5]  
find the coordinates of the point where the two straight lines intersect.
72. Draw the graph of the equation  $2x - y + 3 = 0$ . Using the graph, find the value of  $y$  when [5]  
a.  $x = 2$   
b.  $x = -3$
73. Yamini and Fatima, two students of Class IX of a school, together contributed Rs100 towards the [5]  
Prime Minister's Relief Fund to help the earth quake victims. Write a linear equation which  
satisfies this data. (You may take their contributions as Rs  $x$  and Rs  $y$ .) Draw the graph of the  
same.
74. Half of the perimeter of a rectangular garden is 36m. Write a linear equation which satisfies the [5]  
given data. Also represent it in the form of a Graph.
75. Aarushi was driving a car with a uniform speed of 60 km/h. Draw the distance-time graph. From [5]  
the graph, find the distance travelled by Aarushi in  
i.  $2\frac{1}{2}$  Hours  
ii.  $\frac{1}{2}$  Hour