परमाणु ऊर्जा शिक्षा संस्था , मुंबई
Atomic Energy Education Society, Mumbai
Session : 2023 – 24

Class : IX   **Subject: MATHEMATICS**

WORKSHEET NO.- 1

Name of the Chapter : LINEAR EQUATIONS IN TWO VARIBALES
(CHAPTER – 4)

General Instructions:

1. There are 5 sections in this worksheet.
2. Section – A has 10 multiple choice questions of 1 mark each.
3. Section – B has 10 very short answer questions of 1 mark each.
4. Section – C has 10 short answer questions of 2 marks each.
5. Section – D has 5 short answer questions of 3 marks each.
6. Section – E has 5 long answer questions of 5 marks each.
7. Draw neat diagrams wherever necessary.
8. Use of calculator is not permitted.

SECTION – A

1. The force applied on a body is directly proportional to the acceleration produced on it. The equation to represent the above statement is   **[1]**

   a) $y = kx$

   b) $y = x$

   c) $y + x = 0$

   d) none of these

2. The system of linear equations $ax + by = 0$, $cx + dy = 0$ has a non - trival solution if   **[1]**

   a) $ad – bc = 0$

   b) $ad – bc$

   c) $ad – bc = 0$

   d) $ac + bd = 0$

3. Which of the following pair is a solution of the equation $3x – 2y = 7$?   **[1]**

   a) $(- 2, 1)$

   b) $(1, - 2)$

c) (5, 1)

d) (1, 5)

4   For what value of 'k', x = 2 and y = - 1 is a solution of x + 3y – k = 0?   **[1]**

a) 2

b) - 2

c) - 1

d) 1

5   x = 5 and y = - 2 is the solution of the linear equation.   **[1]**

a) x + 3y = 1

b) 2x + y = 9

c) 3x + y = 0

d) 2x – y = 12

6   If x = 3 and y = - 2 satisfies 5x - y = k, then the value of kis   **[1]**

a) 3

b) 17

c) 12

d) - 2

7   The value of kif x = 3 and y = - 2 is a solution of the equation 2x - 13y = k is   **[1]**

a) 31

b) 23

c) 32

d) 30

8   Which of the following point does not lie on the line y = 2x + 3?   **[1]**

a) (- 5, - 7)

b) (- 1, 1)

c) (3, 9)

d) (3, 7)

9   The equation x - 2 = 0 on number line is represented by   **[1]**

a) infinitely many lines

b) two lines

c) a point

d) a line

10   The linear equation 3x - 5y = 15 has   **[1]**

a) no solution

b) infinitely many solutions

c) a unique solution

d) two solutions

SECTION – B (1 X 10=10)

11   Write the equation in the form ax + by + c = 0 and indicate the values of a, b, c in case: **[1]**
x = - 3

12   Express of the equations in the form ax + by + c = 0 and indicate the values of a, b and   **[1]**
in case: $x - \frac{y}{2} - 5 = 0$

13   Check wheather $\left(\sqrt{3}, 0\right)$ is the solution of the equation 2x - y = 6 or not.   **[1]**

14   If x = 3 and y = 4 is a solution of the equation 5x - 3y = k, find the value of k.   **[1]**

15   Express equations in the form ax + by + c = 0 and indicate the values of a, b, c in   **[1]**
case: $\sqrt{2}x + \sqrt{3}y = 5$

16   Check whether (0, - 5) is solution of the equation 5x - 4y = 20   **[1]**

17   Write two solutions for equation: x + $\pi y = 4$ **[1]**

18   Check whether (0, 5) is solution of the equation 5x - 4y = 20   **[1]**

19   If π x + 3y = 25 and y = 1, then find x.   **[1]**

20   Write the equation of a line parallel to y - axis and passing through the point (4, - 5).   **[1]**

SECTION – C (2 X 10 = 20)

21   Find four solutions for the following equation : x = 0   **[2]**

22   Find the value of the following equation for x = 1, y = 1 as a solution. 3x + ay = 6   **[2]**

23   A three - wheeler scooter charges ₹ 15 for first kilometer and ₹ 8 each for every   **[2]**
subsequent kilometer. For a distance of x km, an amount of y is paid. Write the linear
equation representing the above information.

24   Solve the equation for x: 5(4x + 3) = 3(x - 2)   **[2]**

25   Express the linear equation in the form ax + by + c = 0 and indicate the values of a, b   **[2]**
and c in 5 = 2x.

26 Write four solutions of the equation: $2x + y = 7$ **[2]**

27 Find whether the given equation have $x = 2$, $y = 1$ as a solution: $x + y + 4 = 0$ **[2]**

28 How many solution(s) of the equation $3x + 2 = 2x - 3$ are there on the : **[2]**

    1. Number line?

    2. Cartesian plane?

29 If the length of a rectangle is decreased by 3 units and breadth increased by 4 unit, then the area will increase by 9 sq. units. Represent this situation as a linear equation in two variables. **[2]**

30 Find whether the given equation have $x = 2$, $y = 1$ as a solution: $5x + 3y = 14$ **[2]**

SECTION – D (3 X 5 = 15)

31 Find at least 3 solutions for the following linear equation in two variables: $2x + 5y = 13$ **[3]**

32 Find at least 3 solutions for the following linear equation in two variables: $x + y - 4 = 0$ **[3]**

33 Find at least 3 solutions for the following linear equation in two variables: $2x - 3y + 7 = 0$ **[3]**

34 Find four solutions for the following equation: $12x + 5y = 0$ **[3]**

35 Let y varies directly as x. If $y = 12$ when $x = 4$, then write a linear equation. What is the value of y when $x = 5$? **[3]**

SECTION – E (5 X 5 = 25)

36 Solve for x: $\frac{3x+2}{7} + \frac{4(x+1)}{5} = \frac{2}{3}(2x + 1)$ **[5]**

37 Find five different solutions of the equation: $3y = 4x$ **[5]**

38 **Read the Source/Text given below and answer any four questions:** **[5]**

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 waking. 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. Now you find ages of both of us"

    1. What is the first equation formed?

    a.   x - y = 55

    b.   x + y = 55

    c.   x + 2y = 55

    d.   2x + y = 55

2.   What is the second equation formed ?

    a.   x - y = 10

    b.   x + y = 10

    c.   x + 2y = 20

    d.   x - 2y = 10

3.   What is the present age of Ranjeet in years?

    a.   30

    b.   25

    c.   40

    d.   45

4.   What is the present age of Reeta in years?

    a.   15

    b.   16

    c.   18

    d.   14

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

    a.   45

    b.   25

    c.   30

    d.   35

39 **Read the Source/Text given below and answer any four questions:**   **[5]**
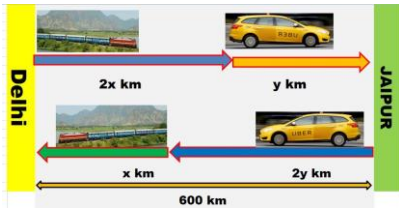
Ajay lives in Delhi, The city of Ajay's father in laws residence is at Jaipur is 600 km from Delhi. Ajay used to travel this 600 km partly by train and partly by car.He used to buy cheap items from Delhi and sale at Jaipur and also buying cheap items from Jaipur and sale at Delhi. Once From **Delhi to 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.

1. What is the value of x?

    a. 400 km

    b. 200 km

    c. 600 km

    d. 300 km

2. What is the value of y?

    a. 200 km

    b. 400 km

    c. 600 km

    d. 300 km

3. In Delhi to Jaipur journey how much distance did he travel by train?

    a. 200 km

    b. 300 km

    c. 600 km

    d. 400 km

4. How much distance did he travel by train in both side journey?

    a. 200 km

    b. 300 km

    c. 400 km

d. 600 km

5. how much distance did he travel by taxi in both side journey?

   a. 200 km

   b. 600 km

   c. 400 km

   d. 300 km

40 **Read the Source/Textgiven below and answer any four questions:** **[5]**

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.

1. What was the equation formed by Reeta?

   a. $x - y = 20$

   b. $x - y = 10$

   c. $x + y = 10$

   d. $x + y = 20$

2. What was the equation formed by Veena?

   a. $2x - 3y = 120$

   b. $x + y = 120$

   c. $3x + 2y = 120$

   d. $2x + 3y = 120$

3. Which number did Peter think ?

    a. 20

    b. 30

    c. 50

    d. 40

4. Which number did Kelvin think?

    a. 20

    b. 30

    c. 50

    d. 40

5. What was the difference of squares of Peter's number and Jame's number?

    a. 900

    b. 400

    c. 500

    d. 1300

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