



PRACTICE WORKSHEET

Subject: Mathematics

Class: CBSE 10th

Chapter: Linear Eq. In 2 Variables **Worksheet:** M-3

TYPE/TOPIC OF QUESTIONS: TYPE OF EQUATIONS - PARALLEL, INTERSECTING, COINCIDENT, CONSISTENT, INCONSISTENT

- Find out whether the lines representing the following pairs of linear equations intersect at a point, are parallel or coincident:
 - $x + 3y = 4$ and $3x - y = 2$
 - $5x - y = 3$ and $2x + y = 5$
 - $3x - 4y = 15$ and $5x - 2y = 11$
 - $3x - y = 2$ and $2x - y = 3$
 - $2x - 3y = 4$ and $3y - x = 4$
 - $2x - 3y = -9$ and $6x + 18 = 9y$
- For which value of k , $kx + y = 2$ and $x + ky = 1$ are inconsistent?
- Which of the following pairs of linear equations has unique solution, no solution, or infinitely many solutions.
 - $x = y + 6$ and $2y = 2x - 3$
 - $x = y$ and $x = -y$
 - $x + y = 4$ and $x/3 + y/3 = 4/3$

TYPE/TOPIC OF QUESTIONS: SOLVING EQUATIONS BY SUBSTITUTION, ELIMINATION, CROSS-MULTIPLICATION, GRAPHICALLY

- Solve the following simultaneous equations graphically:
 - $x + 2y = -4$ $3x - 5y = -1$
 - $4x + 9y = 5$ $-5x + 3y = 8$
- Solve the following simultaneous equations by substitution method:
 - $3a + 4b = 43$ $-2a + 3b = 11$
 - $4x - 3y = 23$ $3x + 4y = 11$
- Solve the following simultaneous equations by elimination method:
 - $(3y/2) - (5x/3) = -2$ $(y/3) + (x/3) = 13/6$
 - $x - y = 3$ $(x/3) + (y/2) = 6$
- Solve the following simultaneous equations by cross-multiplication method:
 - $2x - y = 3$ $4x + y = 3$
 - $2x - 9y = 9$ $5x + 2y = 27$

TYPE/TOPIC OF QUESTIONS: EQUATIONS REDUCIBLE TO PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

- Solve the following:
 - $4/(p - 3) + 6/(q - 4) = 5$ $5/(p - 3) - 3/(q - 4) = 1$
 - $(4/y) + (3/x) = 8$ $(6/y) + (5/x) = 13$
 - $(2/y) - (3/x) = 12$ $(5/y) + (7/x) = 1$

TYPE/TOPIC OF QUESTIONS: WORD PROBLEMS

- The sum of two numbers is 50 and their difference is 22. Find the numbers.
- One number is three times the other number. The difference between the two numbers is 12. Find the two numbers.
- The sum of two numbers is 9. The difference in their squares is also 9. Find the number.
- The difference between the two numbers is 7. Two times the smaller number added to the larger number gives 22. Find the two numbers.
- 3 tables and 2 chairs cost Rs. 1900 and 2 tables and 4 chairs cost Rs. 1800. Find the cost of table and a chair.

14. A lady has only Rs. 1 and Rs.2 coin in her purse. If in all she has 50 coins totaling Rs. 70, Find the number of coins of each type.
15. I am three times old as my son. After five years, I will be $2\frac{1}{2}$ times as old as my son. Find my present age and the present age of my son.
16. Ten years ago, mother was 12 times as old as her daughter and ten years, hence she will be twice as old as her daughter will be. Find the present ages.
17. In the triangle, sum of two angles is 90° which is the measure of the third angle. Also, the difference of these 2 angle is 10° , find the measure of these two unknown angles.
18. A fraction becomes $\frac{10}{7}$ if 2 is added to both numerator and denominator. If however 3 is subtracted from both numerator and denominator, the fraction becomes $\frac{5}{2}$. What is the fraction?
19. 1. A fraction is such that if numerator is multiply by 3 and the denominator is reduce by 2 we get $\frac{3}{5}$ but if the numerator is increased by 4 and the denominator is doubled we get $\frac{5}{14}$. Find the fraction.
20. The sum of the numerator and denominator of a fraction is 12. If the denominator is increased by 1, the fraction becomes $\frac{7}{6}$. Find the fraction.
21. A number consists of two digits whose sum if 5. When the digits are reversed, the number becomes greater by 9. Find the number.
22. The sum of a two digit number and the number obtained by reversing the digit is 110. The difference between the digits is 4. Find the number.
23. Seven times a 2 – digit number is equal to 4 times the number obtained by reversing the digits. The difference between the digits is 1. Find the number.
24. Point A and B are 50 km part on a highway. A car starts from A and another car start from B at the same time. If they travelled in the same direction, they meet in 5 hours but if they move towards each other they meet in 1 hour. Find their speeds.
25. A boat goes 6 km upstream and 57 km downstream in 5 hours. In 9 hours it can go 21 km upstream and 38 km downstream. Determine the speed of stream and that of boat in still water.
26. The distance between two stations is 340 km. two trains starts simultaneously from these stations on parallel tracks to cross each other. If the speed on one of them is greater than the other by 5 km/hr and the distance between the two trains after 2 hours of their start is 30 km, find the speed of each train.
27. The area of a rectangle gets reduced by 10 square units if its length is reduced by 4 units and breadth is increase by 2 units. If we increased the length by 3 units and breadth by 4 units, the area is increased by 96 square units. Find the length and breadth of the rectangle.
28. Raga travel 150 km to his home partly by bus and partly by auto-rickshaw. He takes 2 hours if travels 30 km by bus and rest by auto-rickshaw. He takes 5 minutes longer if he travel 50 km by bus and the rest by auto-rickshaw. Find the speed of bus and the auto-rickshaw.