BAL BHARATI PUBLIC SCHOOL, PITAMPURA, DELHI – 110034

SUBJECT: MATHEMATICS

CHAPTER- 3

TOPIC: Pair Of Linear Equations In Two Variables

STEP 1:- **GUIDELINES AND INTRODUCTION**

Dear students,

Kindly refer to the following notes and video links from the Chapter "Pair of Linear Equations in Two Variables" and thereafter do the questions in your math notebook.

Chapter 3: Part 2

Link for the chapter:-http://ncert.nic.in/textbook/textbook.htm?jemh1=3-15

Introduction: We have already learnt how to solve pair of linear equations graphically. We can solve pair of linear equations without drawing graphs too.

These are termed as algebraic methods (substitution method, elimination method and cross multiplication method) of solving pair of linear equations in two variables. Today, we are going to learn:

1) Substitution Method
2) Elimination Method by Equating the Coefficients.

STEP 2:-

Subtopics:-

i) Algebraic methods of solving a pair of linear equations in two variables:
   a) Substitution Method
   b) Elimination Method
   c) Cross Multiplication Method (to be done in the next lesson)

ii) Real life application (statement questions) based on a pair of linear equations.

STEP 3:-

Key points and important links for reference:-

Solution of pair of linear equations in two variables algebraically:

1. **Solution by Substitution method: Refer to the following link:-**
   https://www.youtube.com/watch?v=sdR2kdhmBIM

2. **Solution by elimination method (by equating the coefficients): Refer to the following link:**
   https://www.youtube.com/watch?v=MwU5ylJIEVs

3. Refer to the following links for important word problems:-
https://www.youtube.com/watch?v=puIoLdl4WY0

https://www.youtube.com/watch?v=oR4K9IfwO50

https://www.youtube.com/watch?v=vIf0uR_l8qU

https://www.youtube.com/watch?v=NsnodnkmJg4

STEP 4: **Points to Remember**

1 Any method can be applied to solve the statement questions. Each method is mandatory to be well understood and practiced.

2. Let us consider the following pair of linear equations in two variables:

$x+ y = 4$ ⟶ (i)

$2x +2y = 8$ ⟶ (ii)

From (i) $y= 4 –x$

When we substitute this value in (ii):

we get $2x +2(4-x) =8$

i.e. $2x +8-2x = 8$

i.e. $8 = 8$ which is always true. In such a case, the pair is said to have infinitely many solutions.

3. Suppose while solving the equations we reach the condition $0 = 8$, which is never true, then the given pair will have no solution.

ASSIGNMENT

(Exercise 3.3 and 3.4 from NCERT including examples)

MORE QUESTIONS FOR PRACTICE

1. If $x = a$ and $y = b$ is the solution of the equations $x – y = 2$ and $x + y = 4$, then the value of a and b is _____ and _____ respectively.

2. One of the common solutions of $ax + by = c$ and y axis is:

(a) (0, c/ b) (b) (0, b/ c) (c) (0,- c/ b) (d) (0, -b/c)

3. If $ax + by = c$ and $lx + my = n$ has a unique solution, then the relation between the coefficient will be: (a) $am \neq lb$ (b) $am = lb$ (c) $ab = lm$ (d) $ab \neq lm$

4. If $x = 3m –1$ and $y = 4$ is a solution of the equation $x + y = 6$, then find the value of m.

5. The sum of the numerator and the denominator of the fraction is 3 less than twice the denominator. If the numerator and denominator both are decreased by 1, the numerator becomes half the denominator. Find the fraction.

6. The difference of two numbers is 66. If one number is four times the other, find the numbers.

7. Pinky scored 40 marks in a test, getting 3 marks for each right answer and losing 1 mark for each wrong answer. Had 4 marks been awarded for each correct answer and 2 marks deducted for each wrong answer, then also Pinky would have scored 40 marks. How many questions were there in the test?

8. A two digit number is obtained either by multiplying the sum of the digits by 8 and adding 1 or by multiplying the difference of the digits by 13 and adding 2. Find the number.

9. Father's age is three times the sum of the ages of his two children. After 5 years, his age will be twice the sum of the ages of his two children. Find the age of the father.

10.Sunita has some Rs.50 and Rs.100 notes amounting to a total of Rs 15,500. If the notes are 200 in number, find out the number of Rs 50 and Rs 100 notes she possesses.

NOTE-

Refer to the following links to practise more questions and watch more videos:

a) https://diksha.gov.in/play/collection/do_31279645524094156811682 4?referrer=utm_source%3Ddiksha_mobile%26utm_content%3Ddo_31279645524094156811682 4%26utm_campaign%3Dshare_content

b) From Khan Academy Assignments:

https://www.khanacademy.org/math/in-in-grade-10-ncert

C) www.examfear.com

d) **http://www.ei-india.com/mindspark-math (free trial for 60 days)**