

## PERIOD 2

# **MATHEMATICS**

**CHAPTER NUMBER:~4** 

**CHAPTER NAME: ~LINEAR EQUATION IN TWO VARIABLES** 

#### **CHANGING YOUR TOMORROW**

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## **LEARNING OUTCOME:**~

1. Students will be able to solve Linear Equation In Two Variables.



#### PREVIOUS KNOWLEDGE TEST

What will be the nature of roots of quadratic equation  $2x^2 + 4x - n = 0$ ?

Which one of the following options is true, and why?

$$y = 3x + 5$$
 has

(i) a unique solution, (ii) only two solutions, (iii) infinitely many solutions

X	y = 3x + 5
0	y = 3(0) + 5 = 0 + 5 = 5
1	y = 3(1) + 5 = 3 + 5 = 8
-	-
<u>822</u> 1	-
10	y = 3(10) + 5 = 30 + 5 = 35

It can be seen that x can have infinite values and for infinite values of x,there can be infinite y

So,y = 3x + 5 has infinite possible solutions Hence, the correct answer is (iii).



Write four solutions for each of the following equations:

(i) 
$$2x + y = 7$$

So four solutions of the given equation are: 1)

$(0, 7), (\frac{7}{2}, 0), (1, 5)$ and $(3$		0
	,0) , (1	., 5) and (3

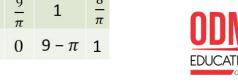


Write four solutions for each of the following equations:

(ii) 
$$\pi x + y = 9$$

For 
$$x = 0$$
, For  $y = 0$ , For  $x = 1$ ,  $\pi x + 1 = 9$   
 $0 + y = 9$   $\pi x = 9$   $\pi x = 9$   $\pi x = 9$   $\pi x = 8$   
 $y = 9$   $x = \frac{9}{\pi}$   $y = 9 - \pi$   $x = \frac{8}{\pi}$   
So,  $(0, 9)$  is a solution So,  $(\frac{9}{\pi}, 0)$  is a solution So,  $(\frac{8}{\pi}, 1)$  is a solution

So four solutions of the given equation are:  $(0, 9), (\frac{9}{\pi}, 0), (1, 9 - \pi)$  and  $(\frac{8}{\pi}, 1)$ 



Ex 4.2, 2

Write four solutions for each of the following equations:

(iii) x = 4y

1	1		- 1				
For $x = 0$ ,	For y = 1,	For $y = 2$ ,	y = 2, For $y = 3,$				
0 = 4 <i>y</i>	x = 4(1)	x = 4(2)		X	= 4(3	3)	
<i>4y</i> = 0	x = 4	x = 8		x = 12			
y = 0							
	So, (4,1) is	So, (8,2) is		So, (12,3) is			S
So, (0, 0) is a	a solution	a solution	- 1	a solution			
solution							
For y = 0, the			- 1				
solution will be			- 1				
same.				1000			
			Х	0	4	8	12
So four solutions of the given equation are:				0	1	2	3
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(0, 0), (4,1), (8,2) and (12,3).



Equation : x - 2y = 4 and which are not:

(i)(0,2)

Putting x = 0 and y = 2 in L.H.S

L.H.S : = 
$$0 - 2(2)$$

$$=-4 \neq 4$$

∴ Hence, L.H.S  $\neq$  R.H.S

∴ Not a solution.



Equation: x - 2y = 4 and which are not: (ii) (2,0)

Putting x = 2 and y = 0 in L.H.S

$$L.H.S := 2 - 0 (0)$$

$$= 2 \neq 4$$

 $\therefore$  Hence, L.H.S ≠ R.H.S

∴ Not a solution.



Equation: x - 2y = 4 and which are not: (iii) (4,0)

## (4,0)

Putting x = 4 and y = 0 in L.H.S

$$= 4 = 4 = R.H.S$$

 $\therefore$  Hence, L.H.S = R.H.S

∴ (4 ,0) is a solution.



Equation : x - 2y = 4 and which are not:

(iv) 
$$(\sqrt{2}, 4\sqrt{2})$$

$$(\sqrt{2}, 4\sqrt{2})$$

Putting x =  $\sqrt{2}$  and y =  $4\sqrt{2}$  in L.H.S

L.H.S : = 
$$\sqrt{2} - 2(4\sqrt{2})$$

$$= \sqrt{2} - 8\sqrt{2}$$

$$= -7\sqrt{2} \neq 4$$



Equation: x - 2y = 4 and which are not: (v) (1,1)

Putting x = 1 and y = 1 in L.H.S

= 1 - 2

∴ Hence, L.H.S  $\neq$  R.H.S

## ∴ Not a solution.



Find the value of k, if x = 2, y = 1 is a solution of the equation 2x + 3y = k.

Given 
$$2x + 3y = k$$

Putting x = 2 and y = 1

$$2(2) + 3(1) = k$$

$$4 + 3 = k$$

$$7 = k$$



# **HOMEWORK ASSIGNMENT**

Exercise 4.2



## AHA

1. If 12 is a root of the equation  $x^2 + kx - 54 = 0$ , then find the value of k.



# THANKING YOU ODM EDUCATIONAL GROUP

