ODM EDUCATIONAL GROUP
Changing your Tomorrow

PERIOD 2

MATHEMATICS

CHAPTER NUMBER :~ 4
CHAPTER NAME :-LINEAR EQUATION IN TWO VARIABLES

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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 $2x2 + 4x – n = 0$?

Ex 4.2, 1

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
-	-
-	-
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).

Ex 4.2, 2

Write four solutions for each of the following equations:

(i) $2x + y = 7$

For $x = 0$,

$2(0) + y = 7$

$0 + y = 7$

$y = 7$

So, (0, 7) is a solution

For $y = 0$,

$2x + 0 = 7$

$2x = 7$

$x = \frac{7}{2}$

So, $\left(\frac{7}{2}, 0\right)$ is a solution

For $x = 1$,

$2(1) + y = 7$

$2 + y = 7$

$y = 7 - 2$

$y = 5$

So, (1, 5) is a solution

For $y = 1$,

$2x + 1 = 7$

$2x = 7 - 1$

$2x = 6$

$x = \frac{6}{2} = 3$

So, $(3,1)$ is a solution

So four solutions of the given equation are:

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

x	0	$\frac{7}{2}$	1	3
y	7	0	5	1

Ex 4.2, 2

Write four solutions for each of the following equations:

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

For $x = 0$,

$\pi(0) + y = 9$

$0 + y = 9$

$y = 9$

So, (0, 9) is a solution

For $y = 0$,

$\pi x + 0 = 9$

$\pi x = 9$

$x = \frac{9}{\pi}$

So, $\left(\frac{9}{\pi}, 0\right)$ is a solution

For $x = 1$,

$\pi(1) + y = 9$

$\pi + y = 9$

$y = 9 - \pi$

So, $(1, 9 - \pi)$ is a solution

For $y = 1$,

$\pi x + 1 = 9$

$\pi x = 9 - 1$

$\pi x = 8$

$x = \frac{8}{\pi}$

So, $\left(\frac{8}{\pi}, 1\right)$ is a solution

So four solutions of the given equation are:

$(0, 9)$, $\left(\frac{9}{\pi}, 0\right)$, $(1, 9 - \pi)$ and $\left(\frac{8}{\pi}, 1\right)$

x	0	$\frac{9}{\pi}$	1	$\frac{8}{\pi}$
y	9	0	$9 - \pi$	1

Ex 4.2, 2

Write four solutions for each of the following equations:

(iii) $x = 4y$

For $x = 0$,	**For y = 1,**	**For y = 2,**	**For y = 3,**
$0 = 4y$	$x = 4(1)$	$x = 4(2)$	$x = 4(3)$
$4y = 0$	x = 4	x = 8	x = 12
y = 0			
So, (0, 0) is a solution	So, (4,1) is a solution	So, (8,2) is a solution	So, (12,3) is a solution
For y = 0, the solution will be same.			

x	0	4	8	12
y	0	1	2	3

So four solutions of the given equation are:
(0, 0), (4,1) , (8,2) and (12,3).

Ex 4.2, 3

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

(i) (0,2)

(0,2)

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

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

$= -4 \neq 4$

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

$\therefore$ **Not a solution.**

Ex 4.2, 3

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

(ii) (2,0)

(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 $\neq$ R.H.S

$\therefore$ **Not a solution.**

Ex 4.2, 3

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

(iii) (4,0)

(4,0)

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

L.H.S : = 4 − 2 (0)

= 4 − 0

= 4 = 4 = R.H.S

∴ Hence, L.H.S = R.H.S

∴ **(4 ,0) is a solution.**

Ex 4.2, 3

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 : = $\sqrt{2} - 2(4\sqrt{2})$

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

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

∴ Hence, L.H.S ≠ R.H.S

∴ **Not a solution.**

Ex 4.2, 3

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

(v) (1 ,1)

(1 ,1)

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

L.H.S : $= 1 - 2(1)$

$= 1 - 2$

$= -1 \neq 4$

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

$\therefore$ **Not a solution.**

Ex 4.2, 4

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 $y = 1$

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

$4 + 3 = k$

$7 = k$

$\therefore \mathbf{k = 7}$

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

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