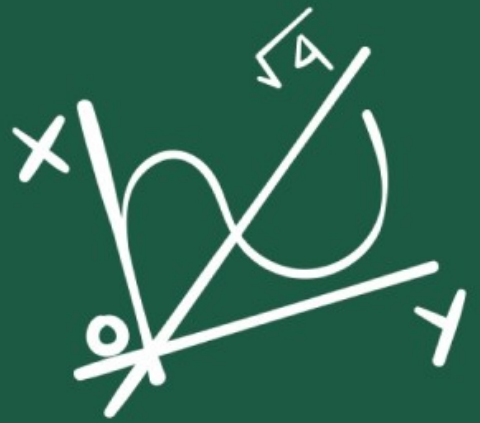
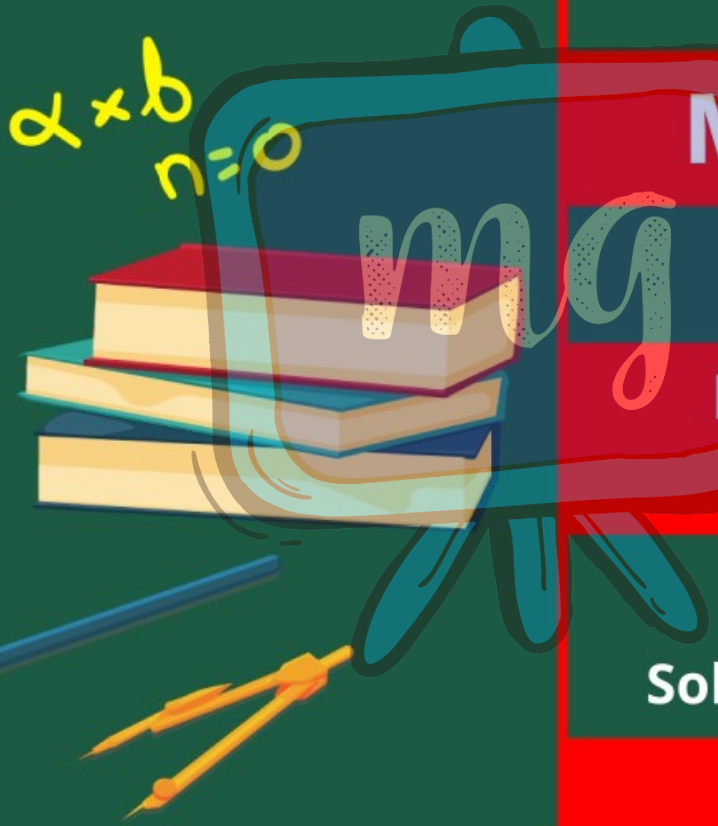
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Class – 9

MATHEMATIC

Chapter – 4

Linear Equations In Two Variables

Part – 2

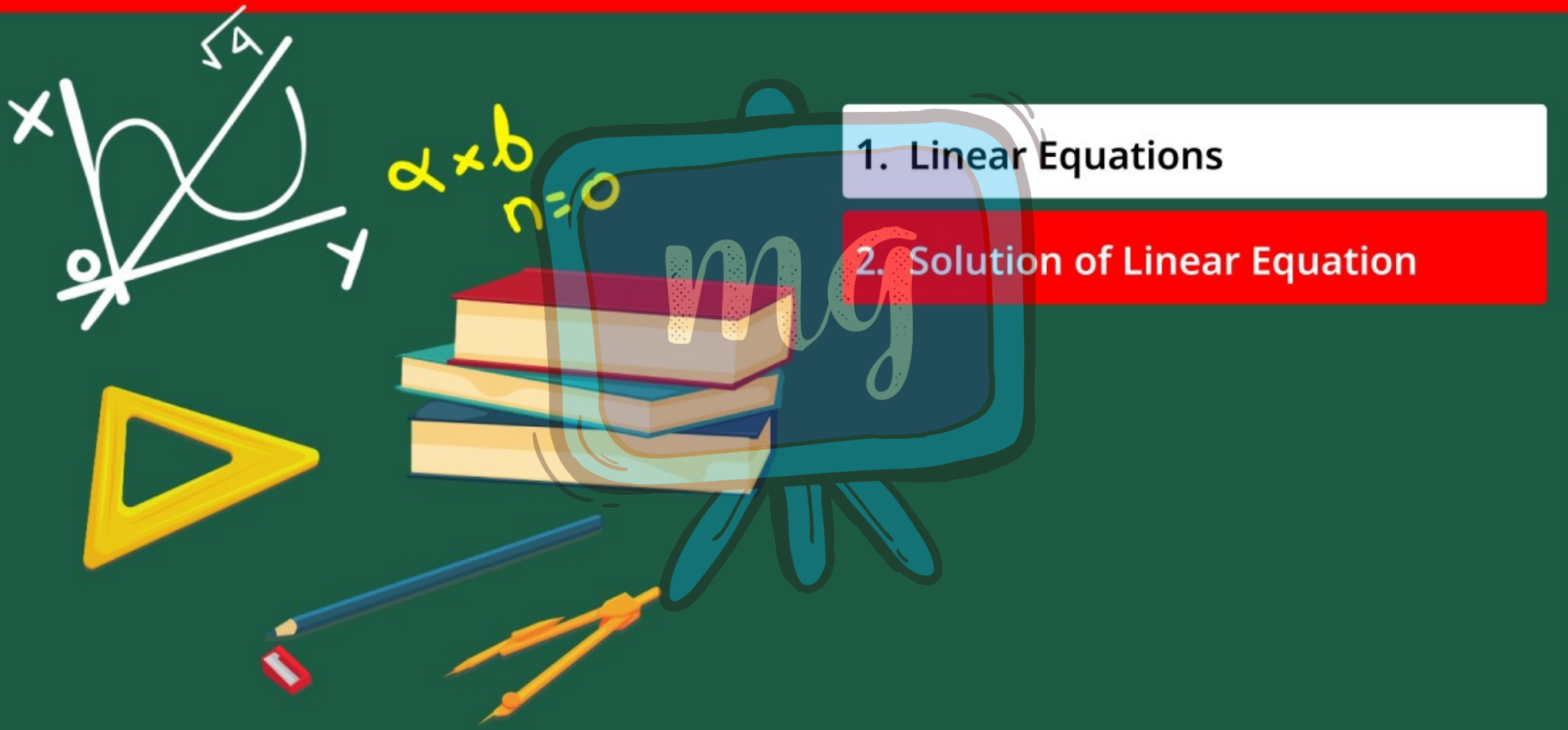
Solution of Linear Equation

Vikas Saini

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OVERVIEW

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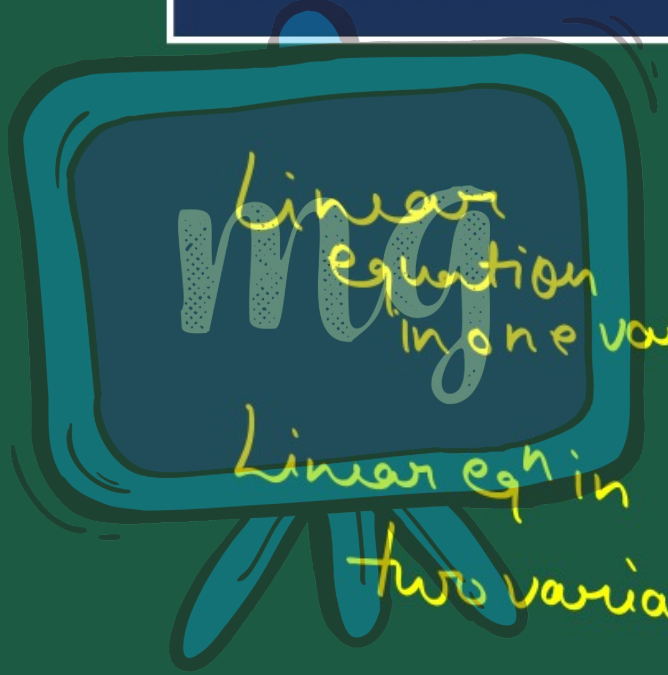


1. Linear Equations
2. Solution of Linear Equation

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SOLUTION OF LINEAR EQUATION



Linear equation in one variable

$ax+b=0$

Linear eqⁿ in two variable

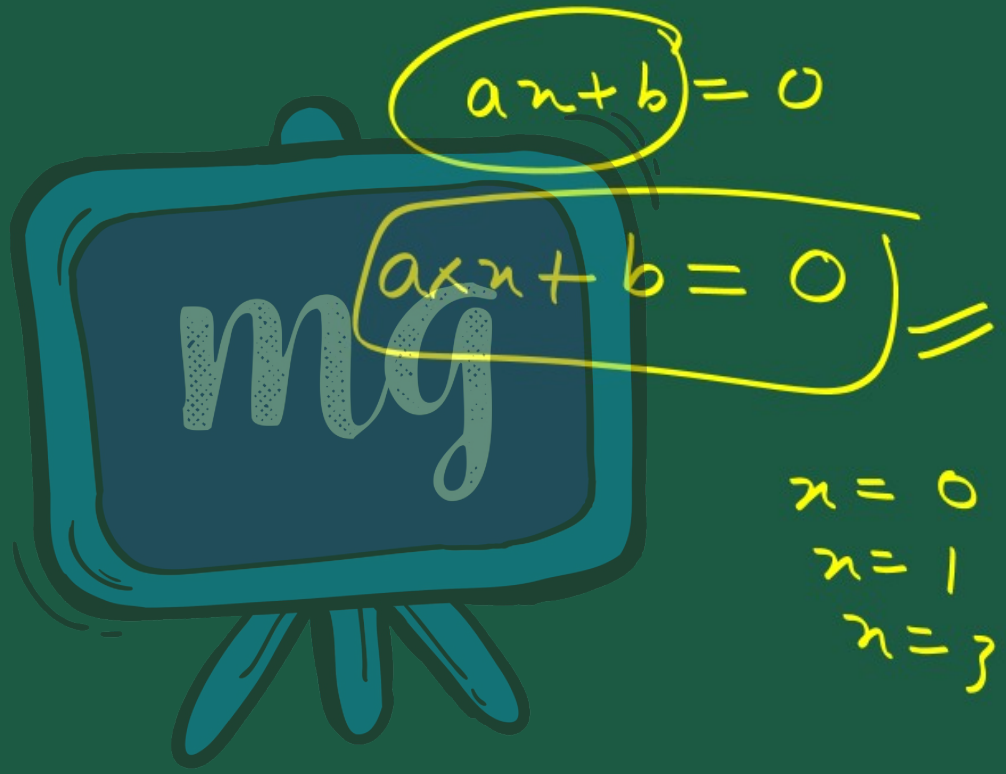
$= ax+by+c=0$

$a, b, c \in R$

$x, y \rightarrow$ variable

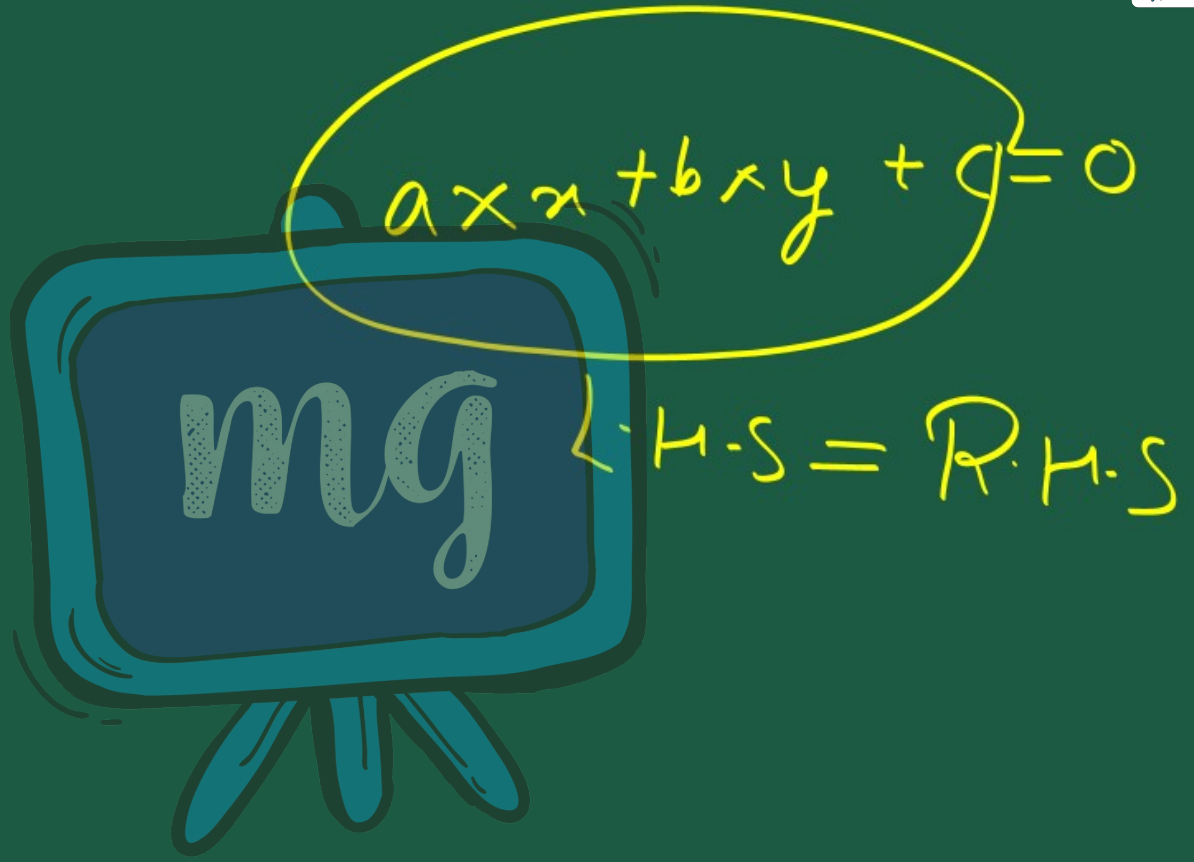
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$ax + b = 0$

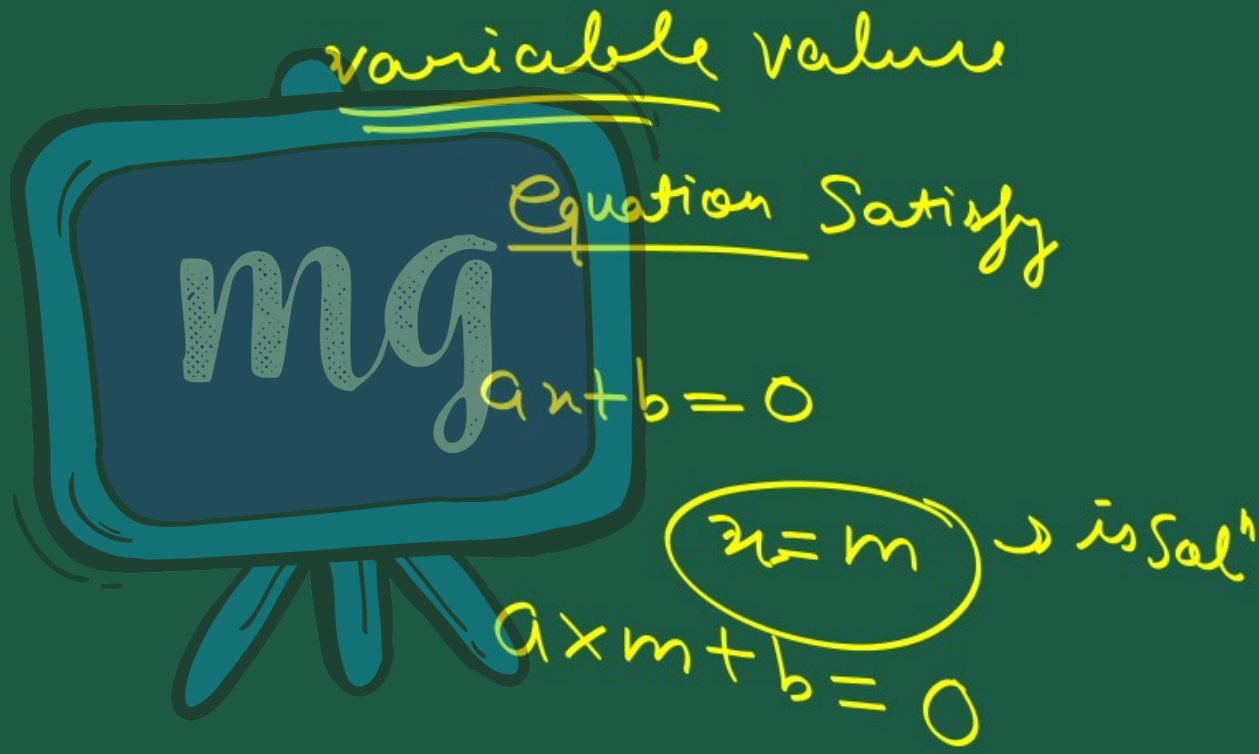
$ax + by + c = 0$

$a, b, c \rightarrow$ Real No.

$x, y \rightarrow$ variable

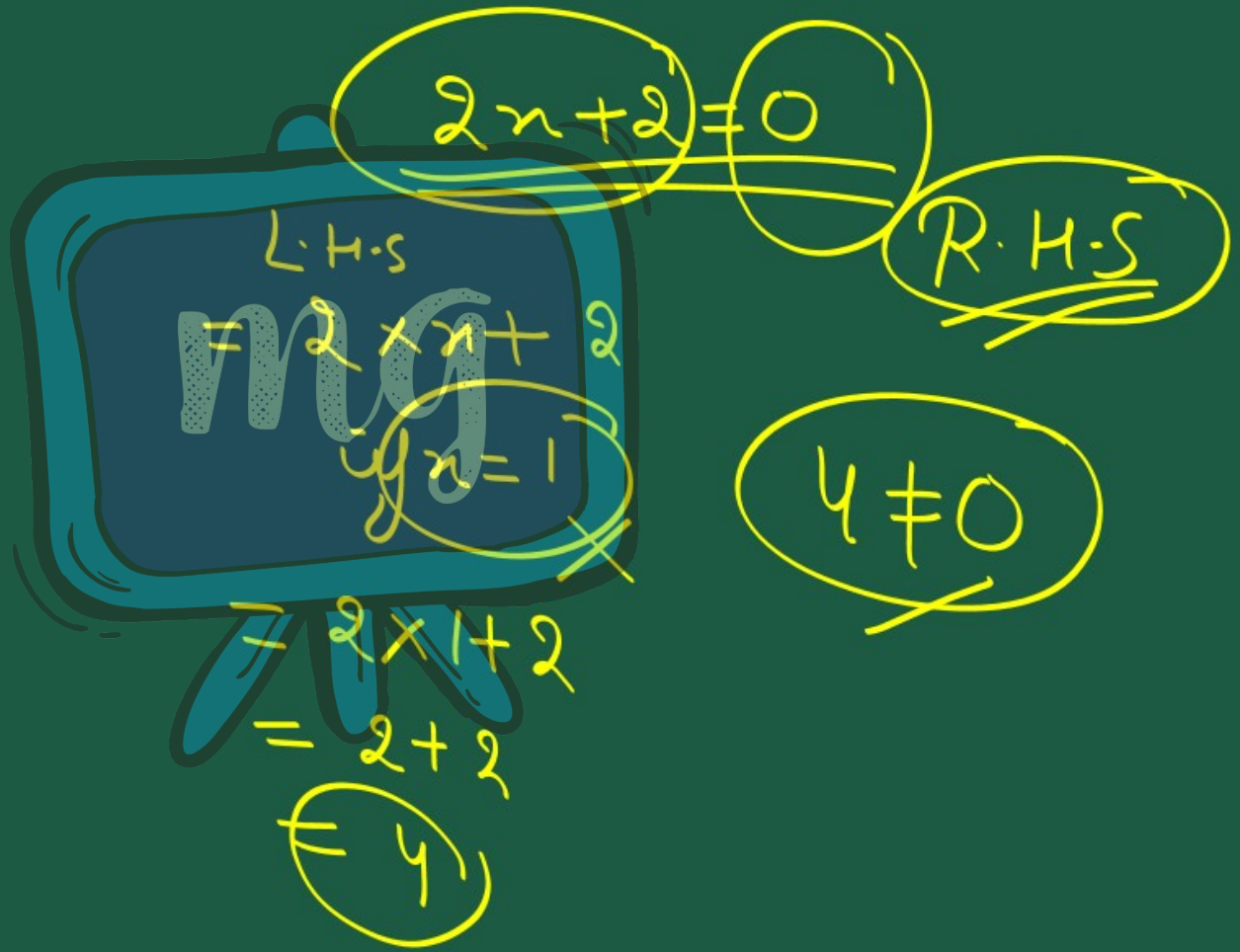
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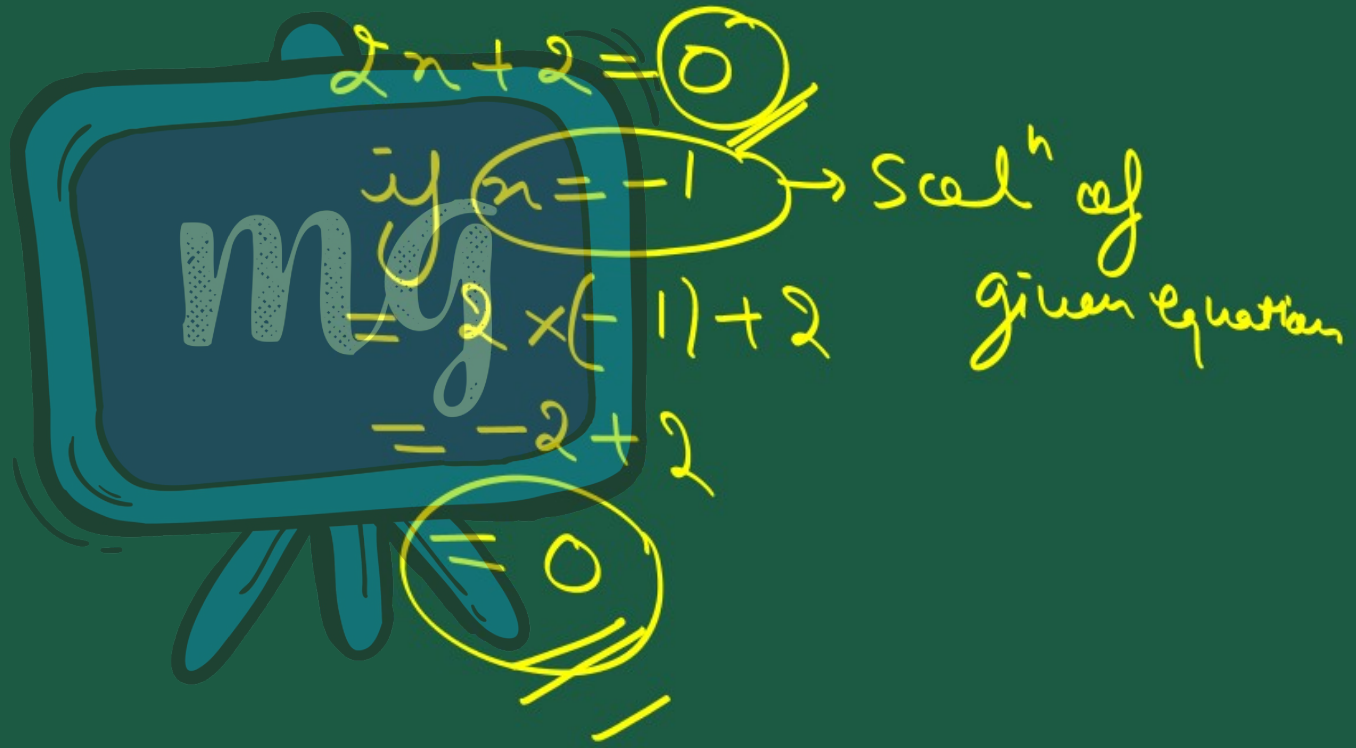
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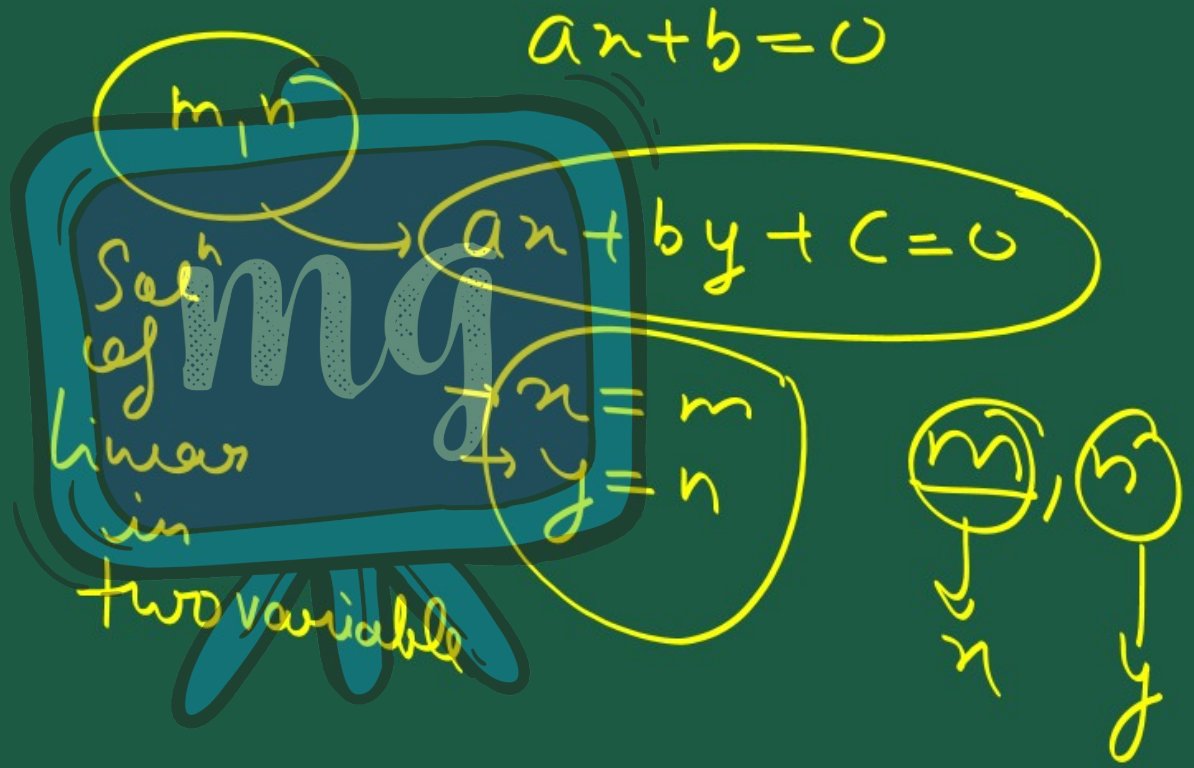
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$2x + y + 1 = 0$

if $x = -1$

$= 2 \times x + y + 1$

$= 2 \times (-1) + y + 1$

$= -2 + y + 1$

$= -1 + y$

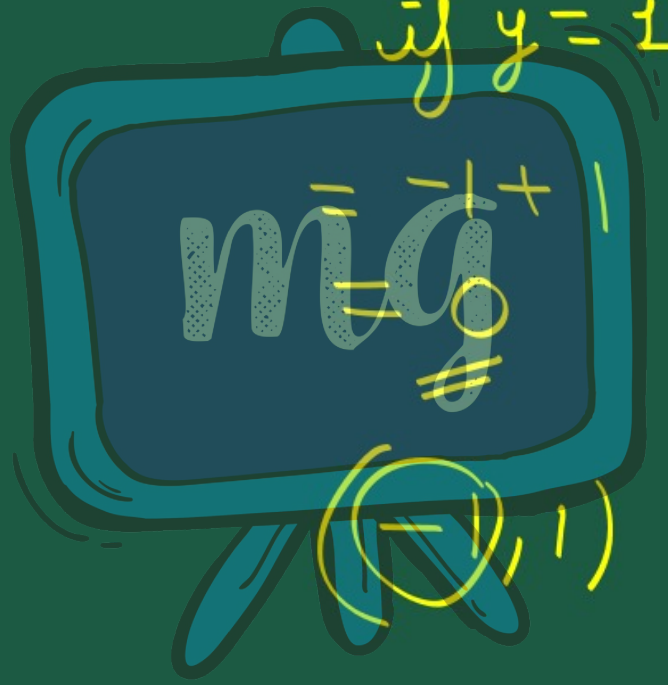
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$= -1 + y$

$-1, 1$

if $y = 1$



$= -1 + 1$

$= 0$

$(-1, 1)$

$2x + y + 1 = 0$

$x = -1$

$y = +1$

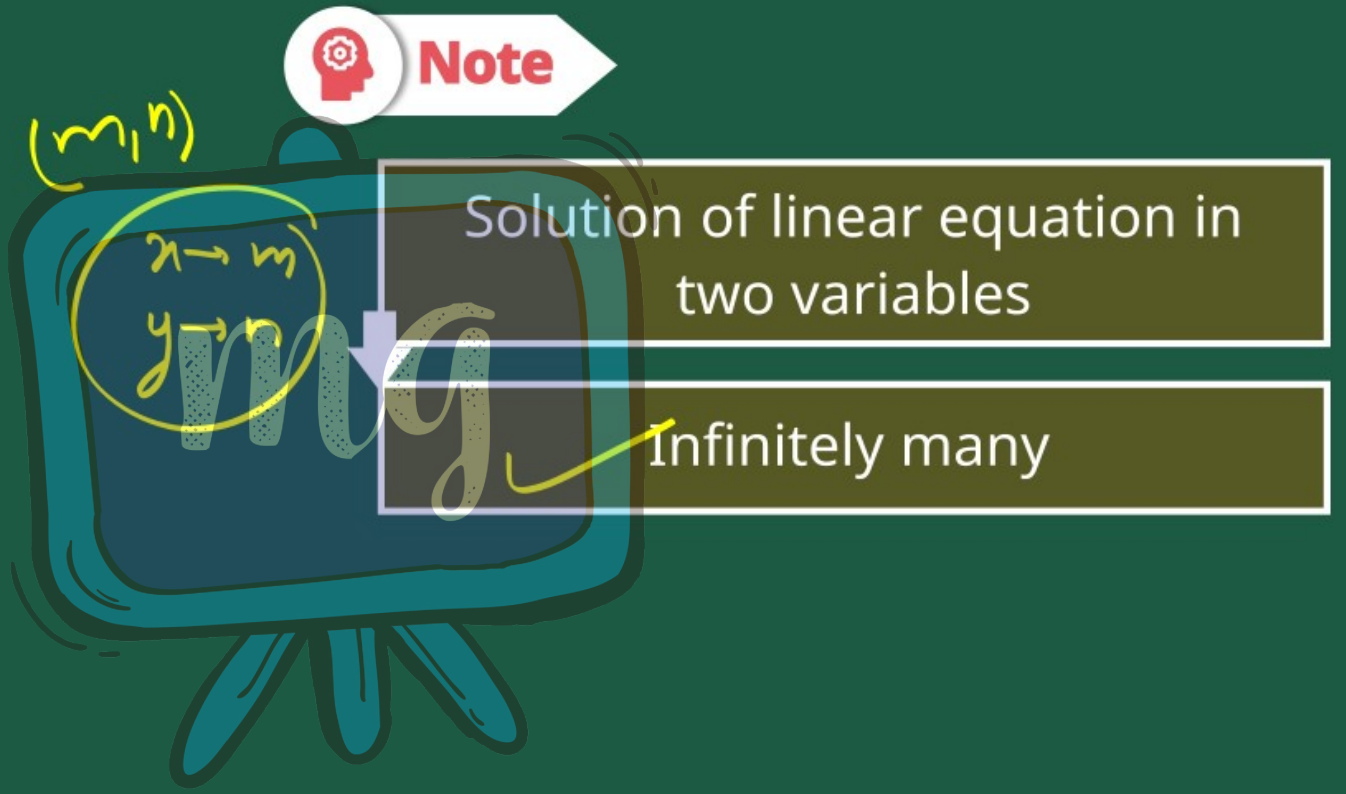
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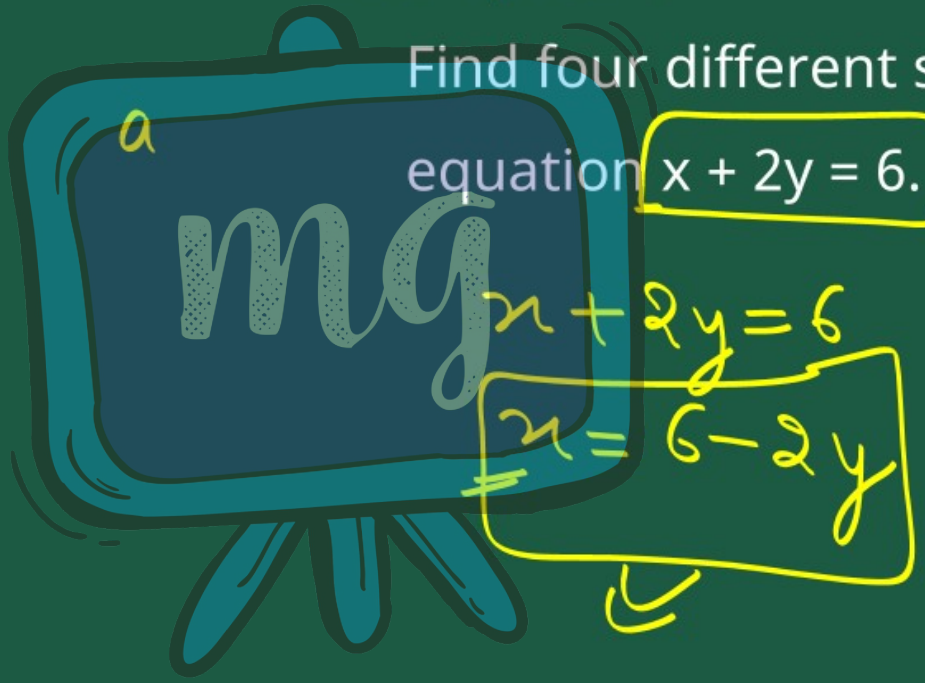


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Example : 3

Find four different solutions of the equation $x + 2y = 6$.



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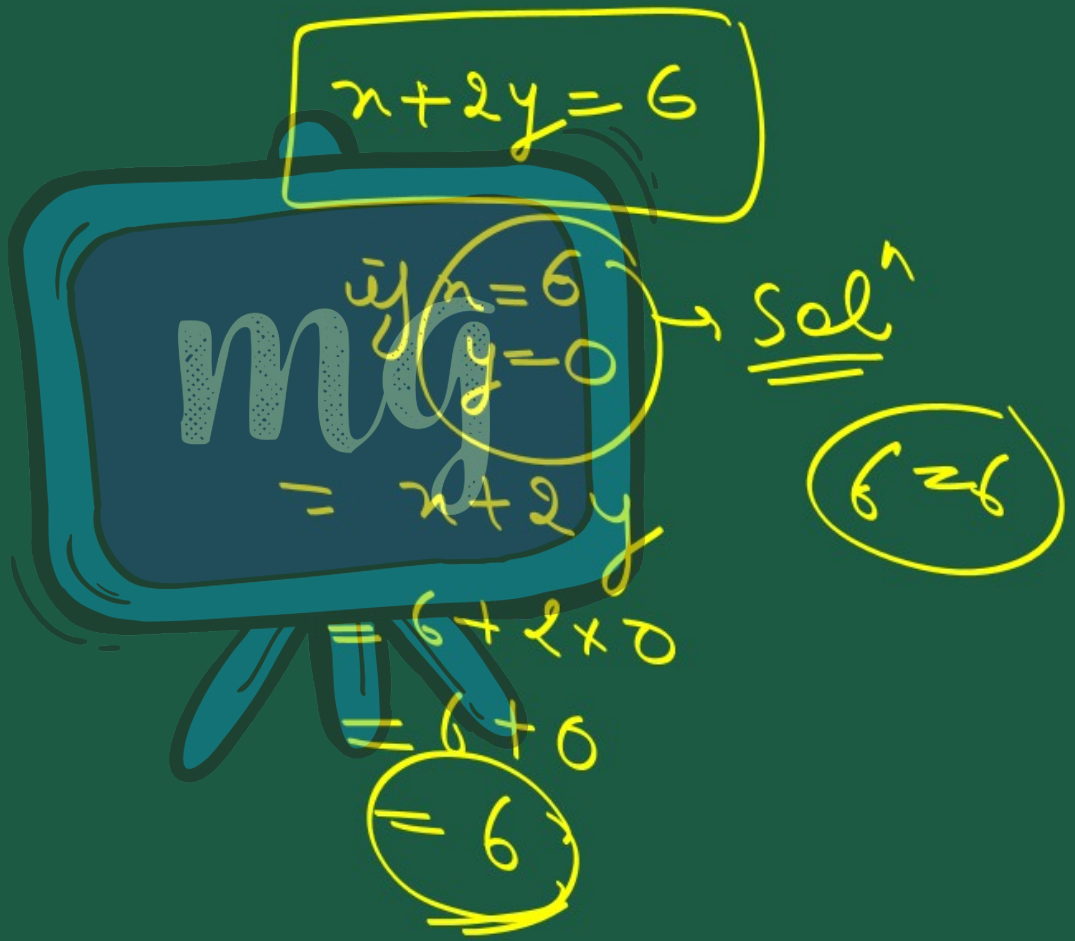
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$x = 6 - 2y$

if $y = 0$	if $y = 1$	if $y = 2$	if $y = 3$
$x = 6 - 2 \times 0$	$x = 6 - 2 \times 1$	$x = 6 - 2 \times 2$	$x = 6 - 2 \times 3$
$= 6 - 0$	$x = 6 - 2$	$= 6 - 4$	$= 6 - 6$
$x = 6$	$x = 4$	$x = 2$	$= 0$
$x = 6$, $y = 0$	$x = 4$, $y = 1$	$x = 2$, $y = 2$	$x = 0$, $y = 3$

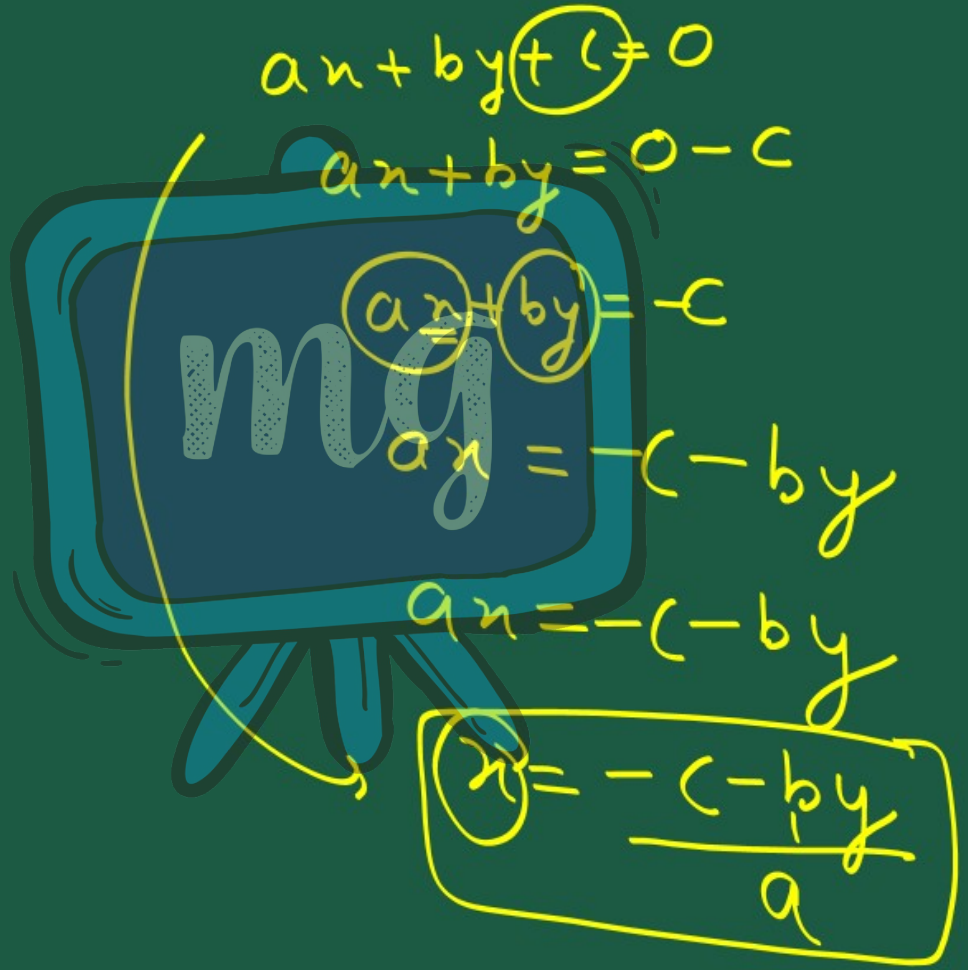
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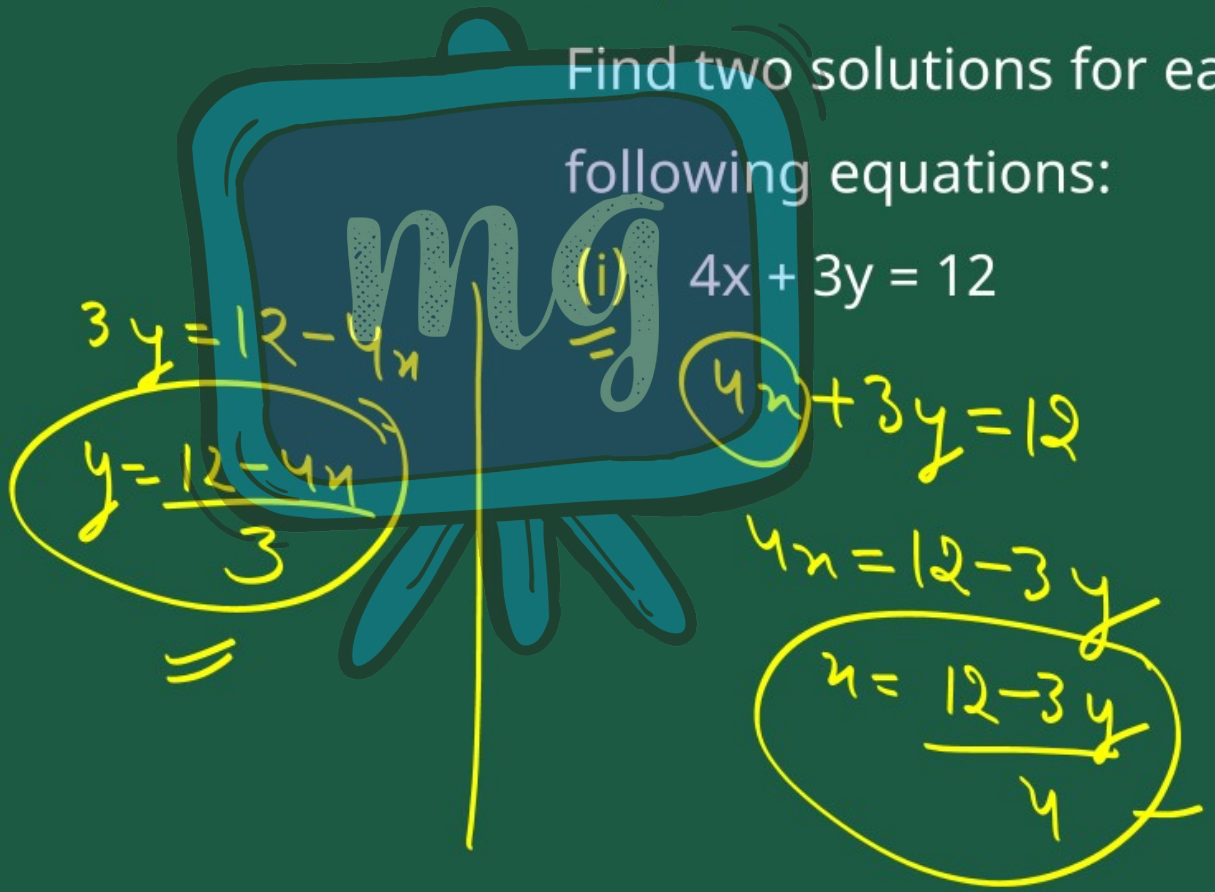
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Example : 4

Find two solutions for each of the following equations:

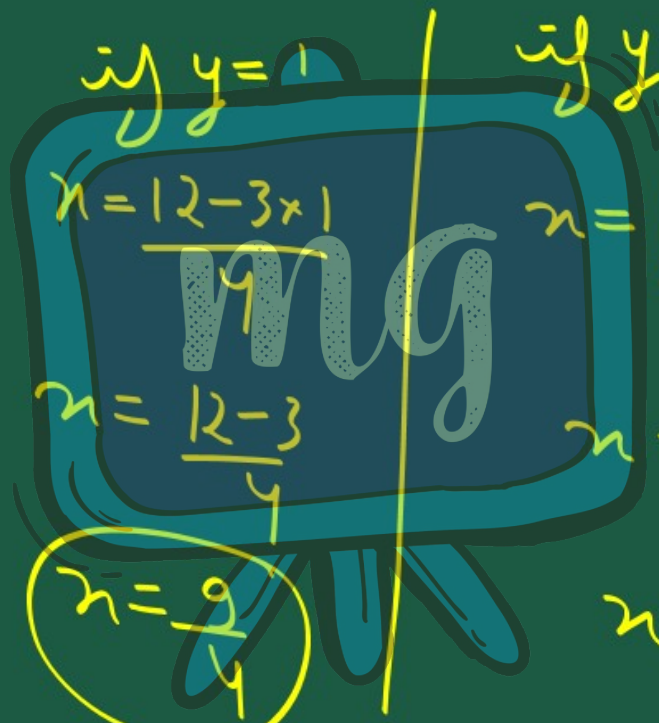
(i) $4x + 3y = 12$



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$$x = \frac{12-3y}{4}$$



if $y = 1$

$$x = \frac{12-3\times1}{4}$$

$$x = \frac{12-3}{4}$$

$$x = \frac{9}{4}$$

if $y = 0$

$$x = \frac{12-3\times0}{4}$$

$$x = \frac{12-0}{4}$$

$$x = \frac{12}{4} = 3$$

$\frac{9}{4}, 1$

$3, 0$

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(ii) $2x + 5y = 0$



$2x + 5y = 0$

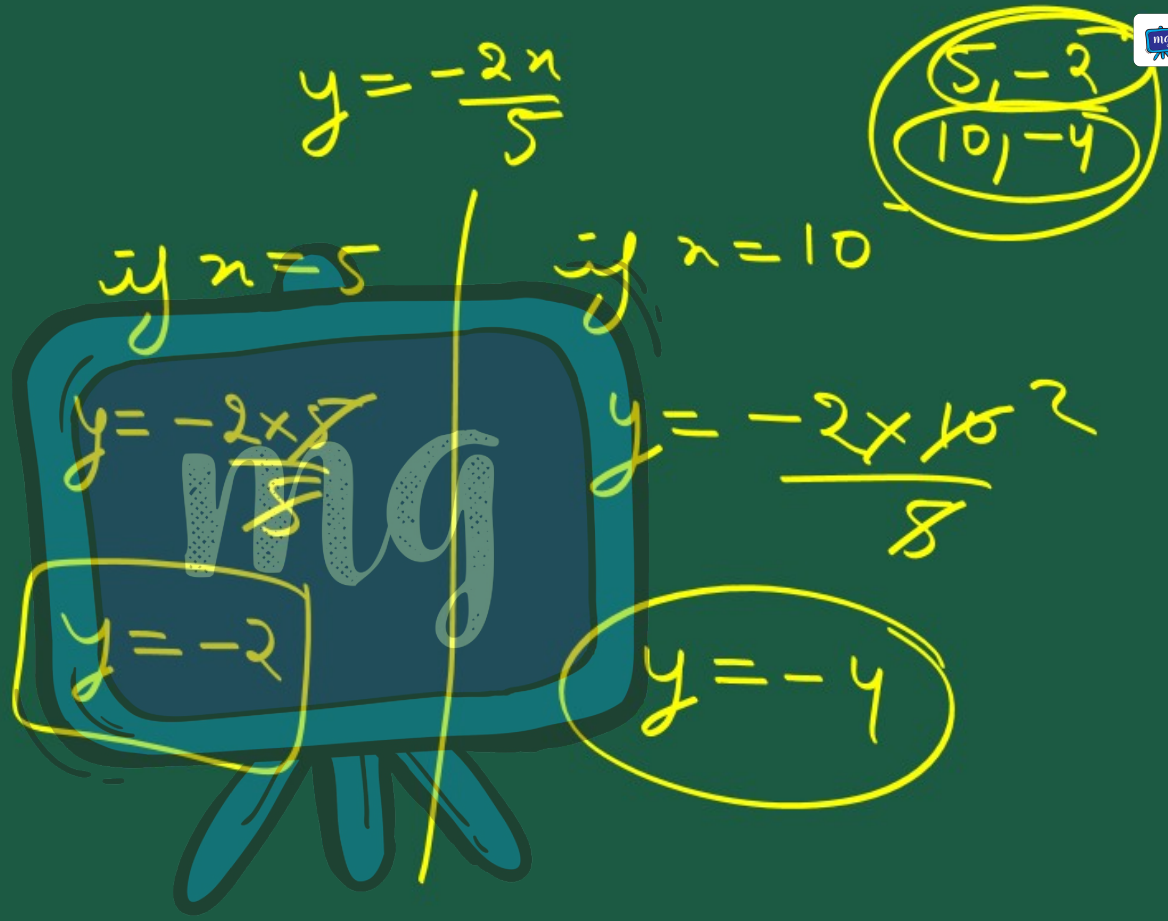
$5y = 0 - 2x$

$5y = -2x$

$y = \frac{-2x}{5}$

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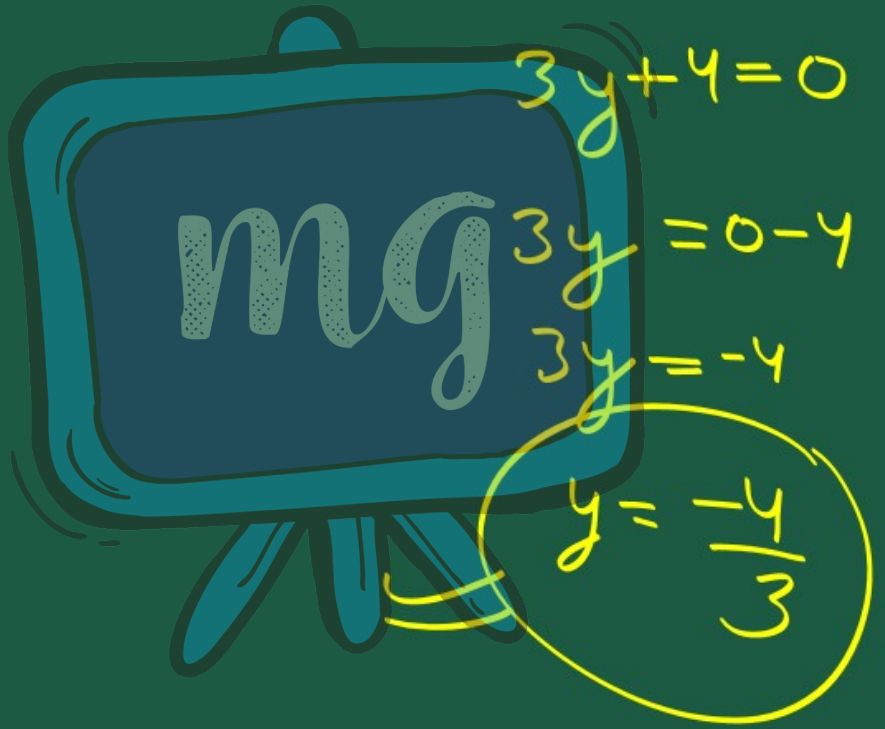
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(iii) $3y + 4 = 0$



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LEARNING OUTCOMES

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Finding the solutions of linear equations

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ASSESSMENT

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1 The solution of the equation $2x + 3y = 15$ is:

- A (4, 3)
- B (3, 3)
- C (3, 4)
- D (5, 2)

$2x+3y=15$

$2x=15-3y$

$x=\frac{15-3y}{2}$

$y=3$

$x=\frac{15-3\times3}{2}=\frac{15-9}{2}=\frac{6}{2}=3$

$y=3$

$x=3$

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ASSESSMENT

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2 If x = −2, y = 3 are solutions of the equation 3x + 5y = k, then the value of k is:

A 12

B 15

C 9

D 6

K=9

3x+5y=K

x=−2
y=3

= 3×x+5y
= 3×(−2)+5×3
= −6+15
K = 9

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ASSESSMENT

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3 How many solutions are there to the equation $2x + 3y = 12$:

- A One
- B Two
- C No solution
- D Infinite

$2x+3y=12$

$2x+3y-12=0$

$x=m$

$y=n$

m, n