

9th CBSE Math

04 .LINEAR EQUATIONS IN TWO VARIABLES

Lecture 1

GORRELA SAMPATH DIKSHIT



M-100, S-97

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TWO WEEKS OF FREE TRIAL CLASSES

GUARANTEED RESULTS WITHIN 3 MONTHS

100% REFUND IF WILLING TO DISCONTINUE WITHIN 3 MONTHS

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Linear Equation in Two Variables
Highest power = 1
equal to sign
 $x \geq y$

$x + 5 = 8$ → Linear equation in one variable

Solution of an equation is the value of the variable, which satisfies the given equation.

LHS = RHS

$$x + 5 - 5 = 8 - 5$$

$$x = 3$$

A linear equation in one variable has unique solution.

$$x^0 = 1$$

$$\begin{aligned} 8 &= 8 \times 1 \\ &= 8 \times x^0 \\ \hline 8 &= 8x^0 \end{aligned}$$

$$8x^1 = 8x \neq 8$$

$$\begin{aligned} 7 &= 7 \times 1 \\ &= 7 \times x^0 \\ \hline 7 &= 7x^0 \end{aligned}$$

Degree of a constant polynomial is 0

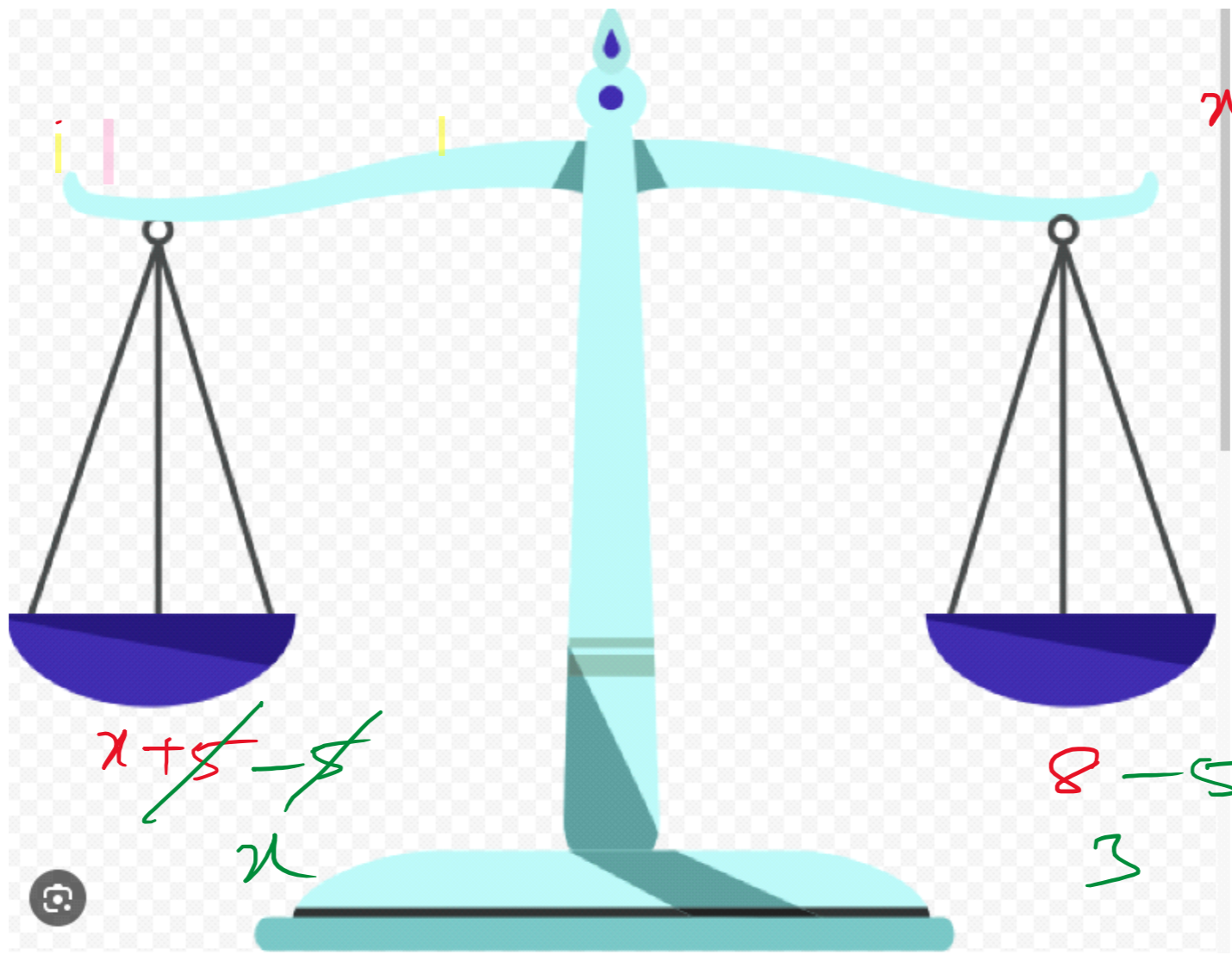
$$\begin{aligned} 0 &= 0 \times x^0 = 0 \\ 0 &= 0 \times x^1 = 0 \\ 0 &= 0 \times x^2 = 0 \\ 0 &= 0 \times x^{100} = 0 \\ 0 &= 0 \times x^{1000} = 0 \end{aligned}$$

Degree of a zero polynomial is not defined.

$$x + 5 = 8$$

$$x + 5 - 5 = 8 - 5$$

$$x = 3$$



$$x = 8 - 5$$

$$x = 3$$

$$x + 5 = 8$$

$$x = 8 - 5$$

$$x = 3$$

$$2x + 5 = 15$$

$$x = ?$$

$$x = 5$$

$$\cancel{2x + 5} - 5 = 15 - 5$$

$$\frac{\cancel{2x} = 10}{\cancel{2}} = \frac{10}{2}$$
$$\underline{\underline{x = 5}}$$

$$2x + 3y = 12 \longrightarrow \text{A Linear equation in two variables}$$

If $x = 0$

$$2(0) + 3y = 12$$

$$0 + 3y = 12$$

$$3y = 12$$

$$y = \frac{12}{3}$$

$$y = 4$$

$$\underline{x = 0, y = 4}$$

$$\cdot 2(0) + 3(4)$$

$$0 + 12$$

$$\frac{\text{LHS}}{12} = \frac{\text{RHS}}{12}$$

If $y = 0$

$$2x + 3 \times 0 = 12$$

$$2x + 0 = 12$$

$$2x = 12$$

$$x = 6$$

$$\underline{x = 6, y = 0}$$

$$2x + 3y = 12$$

$$\underline{x = 2}$$

$$2 \times 2 + 3y = 12$$

$$4 + 3y = 12$$

$$3y = 12 - 4$$

$$3y = 8$$

$$y = \frac{8}{3}$$

$$(x = 2, y = \frac{8}{3})$$

$$(2 \times 2) + \left(\frac{3}{1} \times \frac{8}{3} \right)$$

$$4 + 8$$

$$\underline{12 = 12}$$

$$2x + 3y = 12$$

$$\underline{y = 2}$$

$$2x + 3 \times 2 = 12$$

$$2x + 6 = 12$$

$$2x = 12 - 6$$

$$2x = 6$$

$$\underline{x = 3}$$

$$\underline{\underline{x = 3, y = 2}}$$

$$\underline{x = 3, y = 2}$$

$$(2 \times 3) + (3 \times 2)$$

$$6 + 6$$

$$12$$

A linear equation in two variables has infinitely many solutions.

$$2x + 3y = 12$$

$$2x + 3y - 12 = 0$$

$$5x + 7y + 10 = 0$$

$$ax + by + c = 0$$

Standard form of a linear equation in two variables.

$$\underline{a \neq 0, b \neq 0}$$

Thank You !!

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