DAY-4

MAH-CET 2024

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Basic MATHS

EQN. IN 1 VARIABLE

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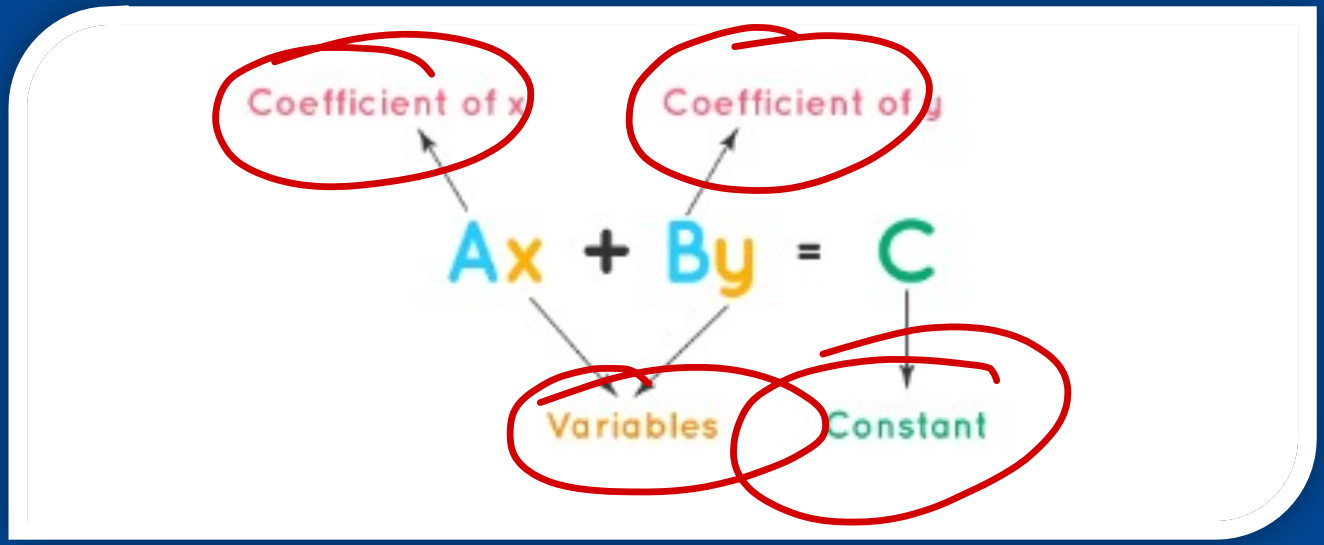
Equations

Equation, statement of equality between two expressions consisting of variables and / or numbers.

Example : x+ 6 = 10

3x+5=11

2x+9y=14



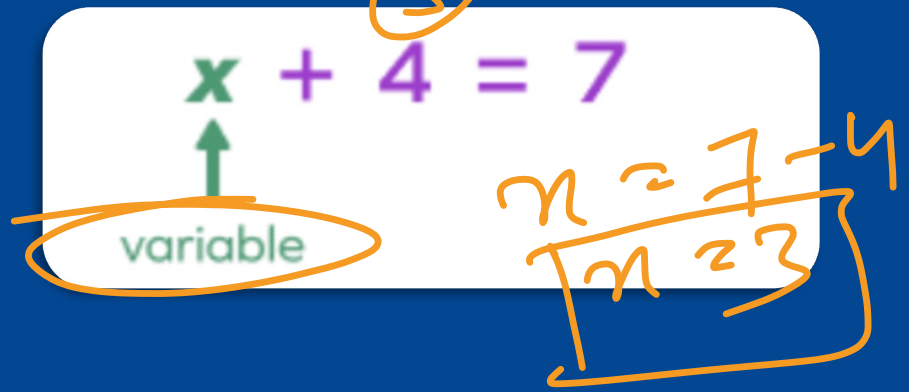
Variable

A variable is something that is liable to change or vary depending on situations.

variable is a letter or symbol that represents an unknown number or value in an equation.

A variable can be from ‘a’ to‘ z’. However, the most commonly used letters used as variables are a, b, x, y, and z .

Example :



Coefficient

A coefficient is a numeric value multiplied by a variable.

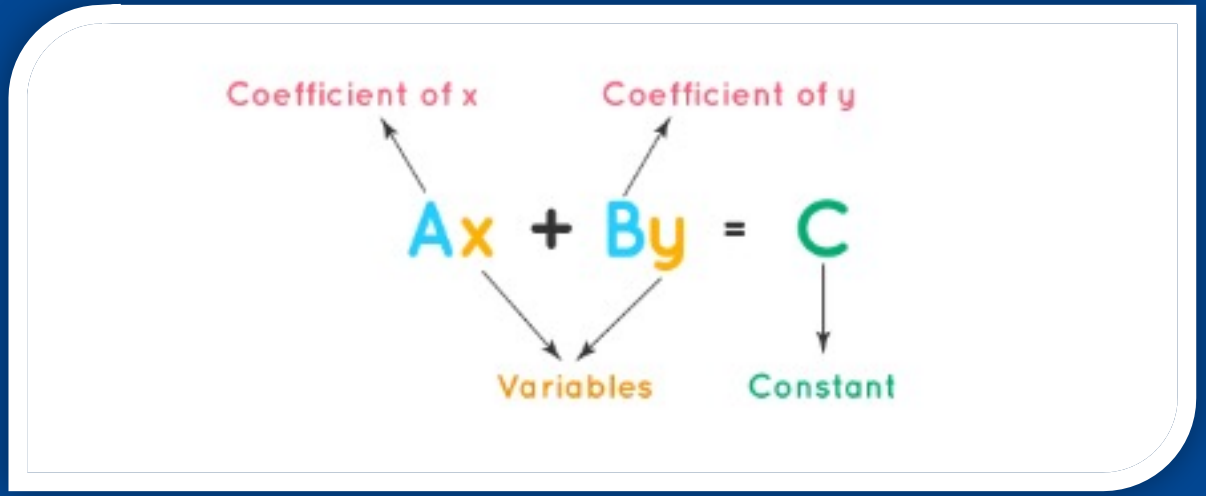
Example : 2x, 4x ,9y etc.

2x 2×2

Constant :

Constant is a number that has a fixed value.

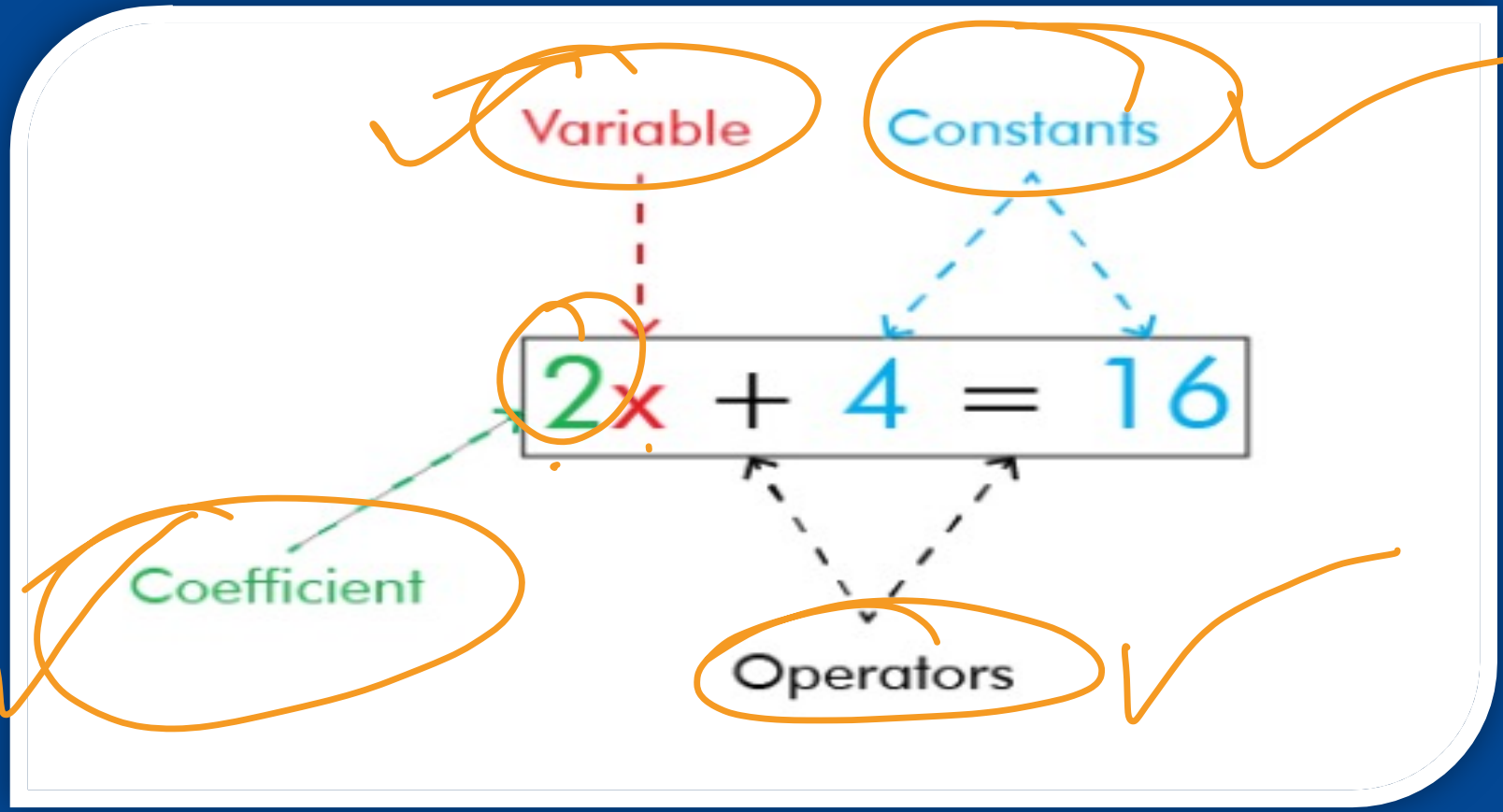
Example : 3,5,6,7 etc.



Operator :

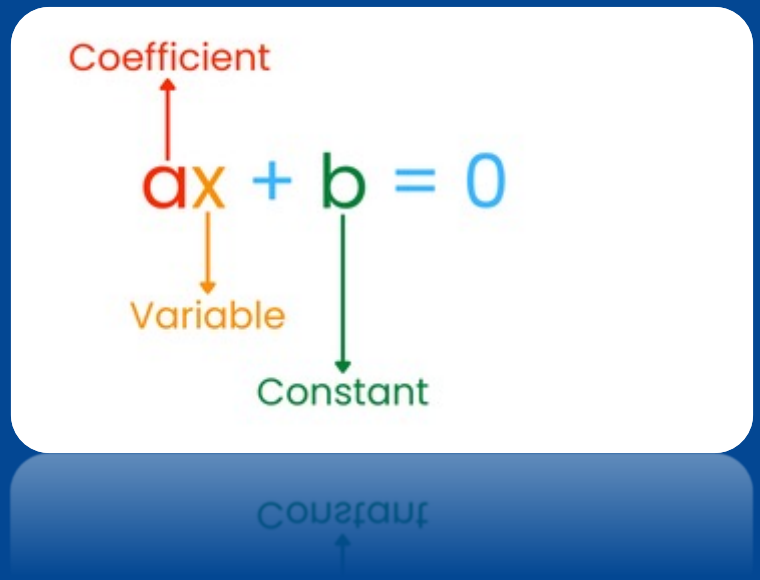
An operator is an arithmetic symbol used to perform operations.

Example : + , − , ×, ÷, =



Equations in one variables

An equation that consists of only one variable.



Two variables

x + y = 2

Example :

X+ 7 = 10

9x + 5 = 15

5 + 6x = 12

How to solve the equations

$x + 4 = 9$

$x = 9 - 4$

$x = 5$

$\therefore$ $x = 5$

$x - 2 = 7$

$x = 7 + 2$

$x = 9$

$\therefore$ $x = 9$

How to solve the equations

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

$x = 4 \times 3$

$x = 12$

$\therefore x = 12$

$4x = 24$

$4 \times x = 24$

$x = \frac{24}{4}$

$x = 6$

$\therefore x = 6$

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How to solve the equations

$9x - 4 = 6x + 29$

$9x - 6x = 29 + 4$

$3x = 33$

$x = \frac{33}{3}$

$\therefore x = 11$

How to solve the equations

$$2(x-3) = \frac{3}{5}(x+4)$$

$2 \times 5 (x-3) = 3(x+4)$

$10(x-3) = 3(x+4)$

$10x - 30 = 3x + 12$

$10x - 3x = 12 + 30$

$7x = 42$

$x = \frac{42}{7}$

$\therefore x = 6$

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How to solve the equations

$$\frac{(x-7)}{(x-2)} = \frac{5}{4}$$

$4x(x-7) = 5x(x-2)$

$4x - 28 = 5x - 10$

$4x - 5x = -10 + 28$

$-x = 18$

$\therefore \boxed{x = -18}$

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How to solve the equations

$$\frac{(8m-1)}{(2m+3)} = 2$$

$8m - 1 = 2(2m+3)$

$8m - 1 = 4m + 6$

$8m - 4m = 6 + 1$

$4m = 7$

$\therefore \boxed{m = \frac{7}{4}}$

Decide whether these values are the solutions of that equation.

x - 4 = 3 ; x = -1, 7, -7

for $x = -1$

$x - 4 = 3$

$-1 - 4 = 3$

$-5 \neq 3$

for $x = 7$

$x - 4 = 3$

$7 - 4 = 3$

$3 = 3$

Decide whether these values are the solutions of that equation.

9m = 81, m = 3, 9, -3

for m = 3

9m = 81

9 x 3 = 81

27 ≠ 81

for m = 9

9m = 81

9 x 9 = 81

81 = 81

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Find the value of

1) 2m + 7 = 9 find the value of m ?

2) 17p - 2 = 49 find the value of p ?

3) $\frac{(y)}{(7)} + \frac{(y-4)}{(3)} = 2$ find the value of y ?

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