7th CLASS PART-1

MATH

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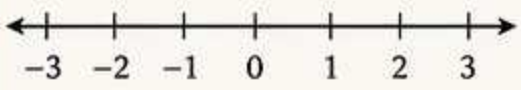
• IMPORTANT FORMULAS •

These formulas will help you solve problems easily and score better in exams. *Learn, Understand & Apply!*

1 INTEGERS

For any integers a, b, c

- $a + b = b + a$ (Commutative law)
- $a + (b + c) = (a + b) + c$ (Associative law)
- $a + 0 = a = 0 + a$ (Additive identity)
- $a + (-a) = 0$ (Additive inverse)
- $a - b = a + (-b)$
- $a - (-b) = a + b$



2 FRACTIONS & DECIMALS

Fractions

- $\frac{a}{b} + \frac{c}{b} = \frac{a+c}{b}$
- $\frac{a}{b} - \frac{c}{b} = \frac{a-c}{b}$
- $\frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd}$
- $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c} = \frac{ad}{bc}$

Decimals

- $a \times 10^n$ = Move decimal n places to right.
- $a \div 10^n$ = Move decimal n places to left.

3 RATIO & PROPORTION

- If $a : b = c : d$, then

$$\frac{a}{b} = \frac{c}{d} = \frac{a+c}{b+d} = \frac{a-c}{b-d}$$

- Fourth proportional (x):

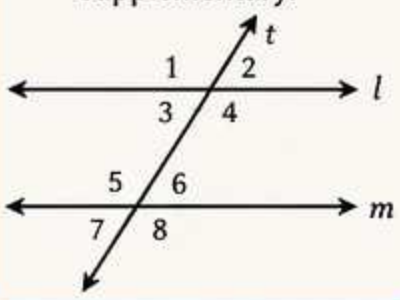
If $a : b = c : x$, then $x = \frac{bc}{a}$

- Third proportional (x):

If $a : b = x : c$, then $x = \frac{bc}{a}$

4 LINES & ANGLES

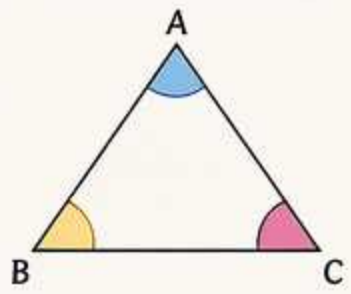
- If a transversal intersects two parallel lines, then
  1. Corresponding angles are equal.
  2. Alternate interior angles are equal.
  3. Interior angles on the same side are supplementary.



5 TRIANGLE

- Sum of interior angles of a triangle is

$$\angle A + \angle B + \angle C = 180°$$

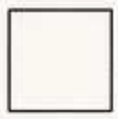


- Exterior angle property

$\angle A + \angle B$ = Exterior angle at C

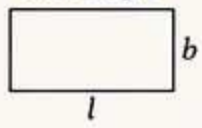
6 AREA & PERIMETER

- **Square**



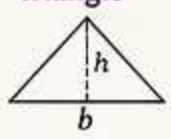
Perimeter = $4a$
Area = a^2

- **Rectangle**



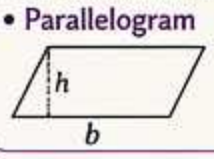
Perimeter = $2(l + b)$
Area = $l \times b$

- **Triangle**



Area = $\frac{1}{2} bh$

- **Parallelogram**



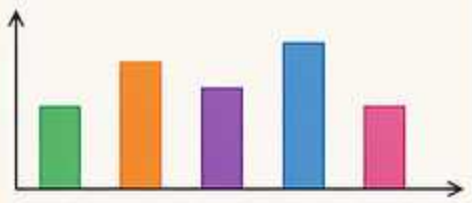
Area = $b \times h$

7 DATA HANDLING

- **Mean (Average)**

$$\bar{x} = \frac{\text{Sum of observations}}{\text{Total number of observations}}$$

- **Median**
  Middle value when data is arranged in order.
- **Mode**
  The observation that occurs most frequently.



8 ALGEBRAIC EXPRESSIONS

- $(a + b)^2 = a^2 + 2ab + b^2$
- $(a - b)^2 = a^2 - 2ab + b^2$
- $(a + b)(a - b) = a^2 - b^2$
- $(x + a)(x + b) = x^2 + (a + b)x + ab$

If x and y are any two numbers, and m is any number, then

- $(x + y) + m = x + (y + m)$
- $(x \times y) \times m = x \times (y \times m)$

Remember:
Practice makes you Perfect!

Understand the Concept • Practice Regularly • Score Excellent

★ *All the Best!* ★