Square: A regular quadrilateral with four straight sides of equal length and four equal (90°) angles.
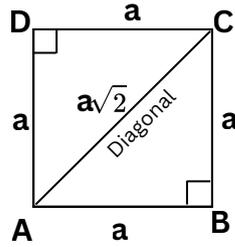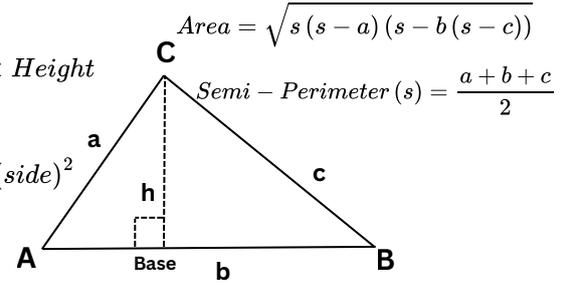
$$Area = a^2$$
$$Perimeter = 4a$$

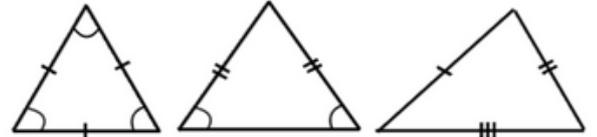$$Area = \frac{1}{2} \times Base \times Height$$

Area of an Equilateral Triangle $= \frac{\sqrt{3}}{4}(side)^2$

$$Area = \sqrt{s\,(s-a)\,(s-b\,(s-c))}$$

$$Semi - Perimeter\,(s) = \frac{a+b+c}{2}$$

Rectangle: A quadrilateral with equal opposite sides and all angles equal, measuring 90°.

$$Area = Length \times Width$$
$$Perimeter = 2\,(Length + Width)$$

Sum of all angles of a Triangle = 180°

Types of Triangles Classified by Sides:

Equilateral   Isosceles   Scalene

Equilateral: All three sides are equal in length.
Isosceles: Two sides are equal in length.
Scalene: All three sides have different lengths

Parallelogram: A quadrilateral with two pairs of parallel and equal sides. The opposite angles are equal.

$$Area = Base \times Height$$
$$Perimeter = 2\,(a+b)$$

$AD\|BC$
$AB\|DC$

Types of Triangles Classified by Angles:
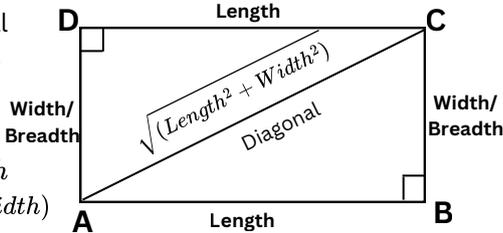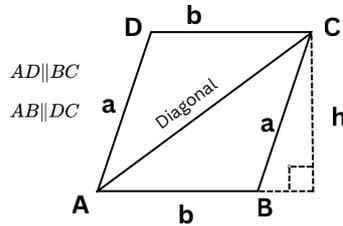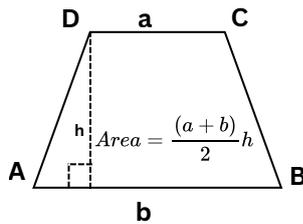

Obtuse   Right-Angled   Acute

Acute: All three interior angles are less than 90°
Right: One interior angle is exactly 90°
Obtuse: One interior angle is greater than 90°

Trapezium: A quadrilateral with one pair of parallel opposite sides

$$Area = \frac{(a+b)}{2}h$$

Rhombus: A special parallelogram in which all sides are equal, opposite sides are parallel, opposite angles are equal, and the diagonals bisect each other at right angles (90 degrees).
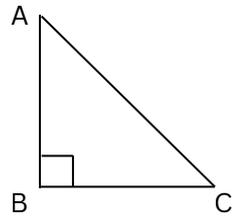
$$Area = \frac{d1 \times d2}{2}$$
$$Perimeter = 4a$$
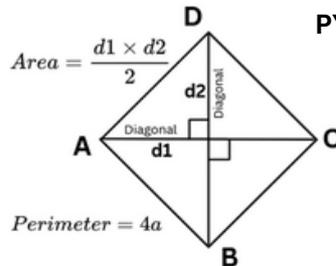
PYTHAGORAS THEOREM $AB^2 + BC^2 = AC^2$

SOH CAH TOA

$$\sin\theta = \frac{OppSide}{Hyp}$$
$$\cos\theta = \frac{AdjSide}{Hyp} \qquad \tan\theta = \frac{OppSide}{AdjSide}$$

Circle: A round shape consisting of all points in a plane that are equidistant from a given point called the Centre
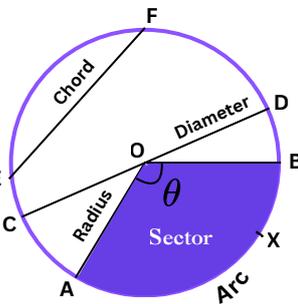
Area of the Circle $A = \pi r^2$

Circumference $C = 2\pi r = 2d$

Area of the Sector $= \frac{\theta}{360}\pi r^2$

Arc Length $= \frac{\theta}{360}2\pi r$

Perimeter of the Sector **=** Arc Length + 2 Radii $= (\frac{\theta}{360}2\pi r) + 2r$
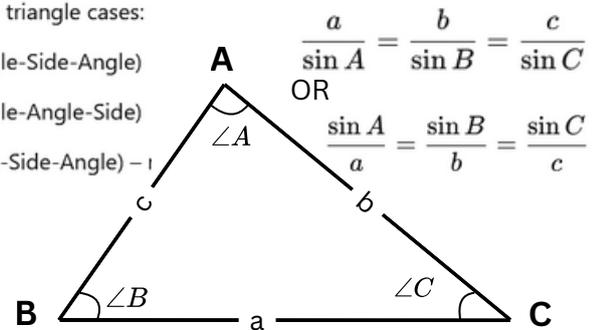
θ **Is The Inscribed Angle**

LAW OF SINES

Use it in these triangle cases:

- **ASA** (Angle-Side-Angle)
- **AAS** (Angle-Angle-Side)
- **SSA** (Side-Side-Angle) –

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$
OR
$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

$$sin^2 A + cos^2 A = 1$$
$$tan^2 A = sec^2 A - 1$$
$$cot^2 A = cosec^2 A - 1$$

$$sin A = cos\,(90-A)$$
$$cos A = sin\,(90-A)$$
$$tan A \times tan\,(90-A) = 1$$