Geometry Theorems

Understanding Shapes, One Theorem at a Time

Basic Line & Angle Theorems

1. Vertically Opposite Angles Theorem:

When two lines intersect, opposite (vertical) angles are equal.

2. Linear Pair Theorem:

Adjacent angles on a straight line add up to 180°.

3. Alternate Interior Angles Theorem:

If two parallel lines are cut by a transversal, alternate interior angles are equal.

4. Corresponding Angles Theorem:

When two parallel lines are cut by a transversal, corresponding angles are equal.

Triangle Theorems

1. Angle Sum Theorem:

The sum of the three angles of a triangle is 180°.

2. Exterior Angle Theorem:

The measure of an exterior angle of a triangle is equal to the sum of its two opposite interior angles.

3. Isosceles Triangle Theorem:

If two sides of a triangle are equal, then the angles opposite those sides are also equal.

4. Pythagoras Theorem:

In a right-angled triangle, $(\text{Hypotenuse})^2 = (\text{Base})^2 + (\text{Perpendicular})^2$.

Circle Theorems

1. Central Angle Theorem:

The angle subtended by an arc at the center is twice the angle subtended at the circumference.

2. Angles in the Same Segment Theorem:

Angles in the same segment of a circle are equal.

3. Tangent-Radius Theorem:

The tangent to a circle is perpendicular to the radius drawn at the point of contact.

4. Equal Chords Theorem:

Equal chords of a circle subtend equal angles at the center.

Quadrilaterals & Parallelograms

1. Opposite Sides Theorem:

In a parallelogram, opposite sides are equal and parallel.

2. Opposite Angles Theorem:

In a parallelogram, opposite angles are equal.

3. Diagonals Bisect Each Other:

In a parallelogram, the diagonals bisect each other.

4. Rhombus & Rectangle Properties:

- Rhombus: Diagonals are perpendicular.

- Rectangle: All angles are 90° and diagonals are equal.

Similarity & Congruence

1. Similarity Criteria:

- AA: Two angles of one triangle equal to two angles of another.

- SAS: One angle equal and sides proportional.

- SSS: Corresponding sides proportional.

2. Congruence Criteria:

- SSS: All sides equal.

- SAS: Two sides and included angle equal.

- ASA: Two angles and included side equal.

- RHS: Right angle, hypotenuse, and one side equal.

3. Areas of Similar Triangles:

Ratio of their areas = (Ratio of corresponding sides)².

FlowHivee Summary

Geometry reveals patterns, logic, and balance in the world around us.

From lines and circles to triangles and polygons, theorems show the hidden connections that make shapes work together in perfect harmony.

FlowHivee reminds us: Math isn't just about numbers - it's about discovering order, structure, and creativity in every angle.

FlowHivee - Learn Anywhere, Shape Your Mind ?