

# Properties of Right Triangles

1. One  $90^\circ$  angle
2. If side lengths are  $a$ ,  $b$ , and  $c$ , where  $c$  is the length of the hypotenuse,  $a^2 + b^2 = c^2$ .
3. One side is perpendicular to one other side.
4. The  $90^\circ$  angle is opposite the longest side, the hypotenuse.
5. The non-right angles are acute.
6. The smallest acute angle is opposite the shortest side.
7. The sum of the acute angles is  $90^\circ$ .
8. A right triangle used by builders is the 3-4-5 triangle.

# Properties of Angles

1. The measure of an acute angle is less than  $90^\circ$ .
2. The measure of an obtuse angle is greater than  $90^\circ$ .
3. The measure of a right angle is  $90^\circ$ .
4. Two angles are complementary if their measures sum to  $90^\circ$ .
5. Two angles are supplementary if their measures sum to  $180^\circ$ .
6. Congruent angles have the same measure.
7. Straight angles have measure equal to  $180^\circ$ .
8. Vertical angles are formed by the intersection of two lines. They are opposite each other and are congruent.

# Properties of a Regular Polygon

1. All sides are congruent.
2. All angles are congruent.
3. A regular polygon with an even number of sides has half as many lines of symmetry as sides.
4. A regular polygon with an odd number of sides has 1 line of symmetry.
5. The interior angle measure of a regular triangle is  $60^\circ$ .
6. The interior angle measure of a regular quadrilateral is  $90^\circ$ .
7. A square is a regular quadrilateral.
8. An equilateral triangle is a regular triangle.

# Properties of Circles

1. Every diameter of a circle is a line of symmetry.
2. The area is equal to  $\pi$  times the radius squared.
3. The perimeter or circumference is equal to  $\pi$  times the diameter.
4. The diameter is the distance across the circle through the center.
5. The radius is half the length of a diameter.
6. If a regular polygon with 100 sides is inscribed in a circle, it would look like the circle and have a slightly smaller area.
7. If a ray (like the hand of a clock) sweeps all the way around a circle once, it will rotate  $360^\circ$ .
8. A cross section of a sphere is a circle.

# Types of Polygons

1. Triangle	5. Heptagon
2. Quadrilateral	6. Octagon
3. Pentagon	7. Nonagon
4. Hexagon	8. Decagon

## 4-Sided Polygons

1. Isosceles Trapezoid	5. Rectangle
2. Kite	6. Rhombus
3. Parallelogram	7. Square
4. Quadrilateral	8. Trapezoid

# Types of Triangles

- 1. Acute
- 2. Congruent
- 3. Equilateral
- 4. Isosceles
- 5. Obtuse
- 6. Right
- 7. Scalene
- 8. Similar

## Angles Formed by Parallel Lines Intersected by a Transversal

- 1. Alternate Interior Angles
- 2. Alternate Exterior Angles
- 3. Congruent Angles
- 4. Corresponding Angles
- 5. Same-Side Interior Angles
- 6. Same-Side Exterior Angles
- 7. Supplementary Angles
- 8. Vertical Angles

# Properties of Squares

1. 4 right angles
2. All sides congruent
3. 4 lines of symmetry
4. Diagonals are lines of symmetry
5. A square is a rhombus.
6. Opposite sides are parallel.
7. Consecutive sides are perpendicular.
8. The perpendicular bisector of a side is a line of symmetry.

# Properties of Rhombuses

1. Opposite sides are parallel.
2. Opposite angles are congruent.
3. All sides are congruent.
4. Both diagonals are lines of symmetry.
5. Each diagonal divides a rhombus into two isosceles triangles.
6. A rhombus is a parallelogram.
7. The diagonals bisect each other.
8. The diagonals divide a rhombus into 4 congruent triangles.

# Properties of Parallelograms

1. Opposite sides are congruent.
2. Opposite angles are congruent.
3.  $180^{\circ}$  rotational symmetry
4. No lines of symmetry
5. 2 pairs of opposite parallel sides
6. Each pair of consecutive angles are supplementary.
7. Each diagonal divides the parallelogram into congruent triangles.
8. Parallelograms are trapezoids.

# Types of 3-Dimensional Shapes

1. Cone	5. Square-Based Pyramid
2. Cube	6. Sphere
3. Cylinder	7. Triangular Prism
4. Tetrahedron	8. Rectangular Prism

# Properties of Isosceles Trapezoids

1. At least one pair of opposite sides are parallel.
2. Two pairs of consecutive angles are supplementary.
3. The perpendicular bisector of the base is a line of symmetry.
4. Base angles are congruent.
5. Opposite angles are supplementary.
6. Diagonals are congruent.
7. There is at least one pair of opposite congruent sides.
8. The line of symmetry divides an isosceles trapezoid into two congruent right trapezoids.

## Names of Congruent Triangles Postulate and Theorems

1. Side-Angle-Side (SAS)	5. Side-Side-Side (SSS)
2. Angle-Side-Angle (ASA)	6. Exterior Angle Theorem
3. Hypotenuse-Leg (HL)	7. Angle-Angle-Side (AAS)
4. CPCTC	8. Side-Angle-Angle (SAA)

(Corresponding parts of congruent triangles  
are congruent)

# Geometry Symbols

1. Angle, $\angle$	5. Parallel, $\parallel$
2. Circle, $\bigcirc$	6. Perpendicular, $\perp$
3. Congruent, $\cong$	7. Similar, $\sim$
4. Equivalent, $\equiv$	8. Triangle, $\triangle$

# Types of Transformations

1. Dilation	5. Scalar
2. Flip	6. Slide
3. Reflection	7. Translation
4. Rotation	8. Turn

# Properties of Triangles

1. Three vertices
2. Three sides
3. Three angles
4. Base
5. Altitude or height
6. Interior angle sum =  $180^\circ$
7. No parallel sides
8. Exterior angle sum =  $360^\circ$

# Types of Angles

1. Acute
2. Obtuse
3. Right
4. Straight
5. Alternate
6. Congruent
7. Complementary
8. Supplementary