

## Some Common Geometry Terminology

**Attribute:** Any characteristic of an object that can be described such as shape, color, size, number of sides, etc. **Properties** are characteristics that hold for all objects in a *class of objects*, e.g., all squares have 4 right angles and 4 congruent sides. However, you may see the words *attribute* and *property* used interchangeably in other resources.

**Circle:** A circle is the set of all points a fixed distance from a point called the center. The set of all point (called the “*locus* of points”) in a plane equidistant from a fixed point called the center.

**Cone:** A “pointed” three-dimensional solid with a flat circular base, a curved side (called its “lateral surface”), and a “peak”, called the vertex.

**Congruent:** Congruent figures are figures that have exactly the same size and shape. Line segments that are congruent have the same length. Angles that are congruent have the same angle measure.

**Cube:** A cube is a rectangular prism whose faces are all congruent squares. A cube is a regular polyhedron.

**Cylinder:** A three-dimensional solid figure with a curved lateral (side) surface having and two parallel circular bases.

**Edge:** The edge of a polyhedron is a line segment where two faces of a polyhedron meet.

**Face:** A face is a plane figure that serves as one side of a polyhedron or other solid figure and forms its boundary. A face of a polyhedron is one of the polygons that forms the polyhedron.

**Heptagon:** A polygon with seven sides.

**Hexagon:** A polygon with six sides. NOTE: The yellow pattern block is an example of a regular hexagon.

**Isosceles Triangle:** A triangle with two congruent sides and two congruent angles.

**Line:** An infinite set of points that forms a straight path and extends infinitely in opposite directions.

**Line Segment:** A part of a line that has two endpoints and contains all of the points of the line between the two endpoints.

**Octagon:** A polygon with eight sides.

**Parallel Lines:** Lines that lie in the same plane and do not intersect; parallel lines are always the same distance apart (equidistant).

**Parallelogram:** A quadrilateral with two pairs of congruent, parallel sides. NOTE: The blue, orange and tan pattern blocks are all parallelograms.

Some PROPERTIES of a parallelogram include:

- ◆ The diagonals of a parallelogram bisect each other
- ◆ The opposite angles of a parallelogram are congruent
- ◆ The adjacent angles of a parallelogram are supplementary

**Pentagon:** A polygon with five sides.

**Perpendicular Lines:** Lines that form right (90 degrees) angles.

**Plane figures:** One-dimensional and two-dimensional figures contained completely in a plane. Plane figures have length and/or width but no depth. Examples include angles, lines, circles, and polygons (triangles, squares, pentagons, hexagons, etc.).

**Polygons:** Closed plane figures (two-dimensional) that are bounded by line segments that meet only at their endpoints. Polygons are classified by the number of sides. Triangles, quadrilaterals, pentagons, hexagons, etc. are all polygons.

**Polyhedron** (Plural is *polyhedra*): Three-dimensional figures that are bounded by polygons.

**Prism:** A (three-dimensional) polyhedron that is bounded by two congruent, parallel polygons (called the *bases*) and whose other faces are parallelograms. A prism is often named by its base polygon, e.g., triangular prism, rectangular prism, etc.

**Pyramid:** A polyhedron with a polygonal base and three or more other triangular faces meeting in a common vertex. A *square pyramid*

has a square base and four triangles meeting at a vertex. A *triangular pyramid* has a triangular base with three triangles meeting at a vertex.

**Quadrilateral:** A polygon with four sides. Some special types of quadrilaterals:

- ◆ If there is exactly one pair of parallel sides, then the quadrilateral is a **trapezoid**.
- ◆ If there are two pairs of parallel sides, then the quadrilateral is a **parallelogram**.
- ◆ If the parallelogram has four congruent sides (with the same length), then the quadrilateral is a **rhombus**.
- ◆ If the parallelogram has a right angle, then the quadrilateral is a **rectangle**.
- ◆ If the parallelogram has a right angle and all four sides the same length, then the quadrilateral is a **square**.

**Rectangle:** A parallelogram with one right angle.

**Regular:** A figure is regular if all of its sides are equal (congruent) and all of the interior angles are equal (congruent). An equilateral triangle is a regular triangle.

**Rhombus:** An equilateral parallelogram. NOTE: The blue and tan pattern blocks are rhombuses (*rhombi*), as is the orange square. Some PROPERTIES of a rhombus:

- ◆ All of the properties of a parallelogram listed above.
- ◆ In addition, the diagonals of a rhombus are perpendicular.

**Rectangular prism:** A polyhedron with six rectangular faces, including the two congruent parallel bases.

**Right Angle:** An angle whose measure is exactly 90 degrees.

**Segment:** SEE *line segment*.

**Side:** (1) A side of a polygon is one of the line segments that form its boundary. (2) A side of an angle is one of the rays that form the angle.

**Solid Figure:** A three-dimensional figure; a solid figure encloses a region of space. Solid figures have three dimensions: length, width and height (depth). Examples include polyhedra, cubes, prisms, pyramids, cones, cylinders, spheres, etc.

**Sphere:** Informally, a “ball-like” figure with no flat bases. The set of all points in *space* that are equidistant from a center point. NOTE: The sphere is the three-dimensional analog of a circle.

**Square:** A polygon with four right angles and four congruent sides. A square is a rectangle; a square is a rhombus; a square is a parallelogram. NOTE: The orange pattern block is a square.

**Trapezoid:** A quadrilateral with *one and only one pair* of parallel sides. NOTE: The red pattern block is an isosceles trapezoid (*isosceles* means that two sides are congruent).

**Triangle:** A polygon with three sides. Triangles can be classified either by side lengths or by angle measures:

**Scalene Triangle:** A triangle with NO congruent sides (all sides have different lengths)

**Isosceles Triangle:** A triangle with TWO congruent sides (two side are equal in length)

**Equilateral Triangle:** A triangle with THREE congruent sides (all sides are equal in length)

**Acute Triangle:** A triangle whose interior angles all measure less than 90 degrees

**Right Triangle:** A triangle that has exactly one right angle

**Obtuse Triangle:** A triangle with exactly one interior angle that measures greater than 90 degrees

**Equiangular triangle:** A triangle whose interior angles are all equal in measure

NOTES: The name of a particular triangle can combine more than one descriptor. For example, an isosceles right triangle has two sides of equal length and one right angle; a scalene obtuse triangle has one obtuse angle and no sides equal. An equilateral triangle is a regular triangle. The green pattern block is an equilateral (equiangular) triangle.

**Vertex:** A vertex is a point that can be thought of informally as a “corner”.

- ◆ The *vertex of an angle* is the common endpoint of two rays that form the angle.
- ◆ A *vertex of a polygon* is a point where two sides meet.
- ◆ A *vertex of a polyhedron* is a point where three or more *faces* meet. Also, a *vertex of a polyhedron* is a point where three or more *edges* meet.
- ◆ The *vertex of a cone or pyramid* is the point opposite the base of the cone or pyramid; this vertex is often called an *apex*.