

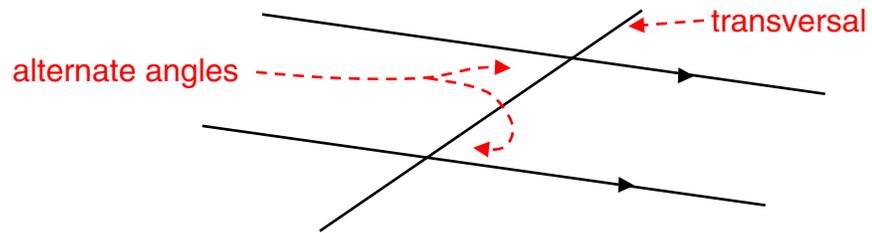


Appendix A: Glossary

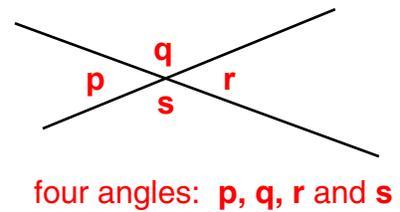
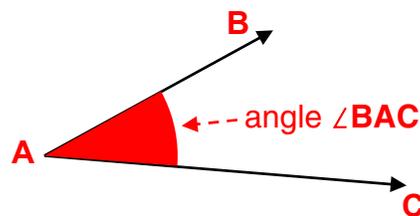
Acute Angle An *angle* that measures less than 90° .

Acute Triangle A *triangle* that has three *acute angles*.

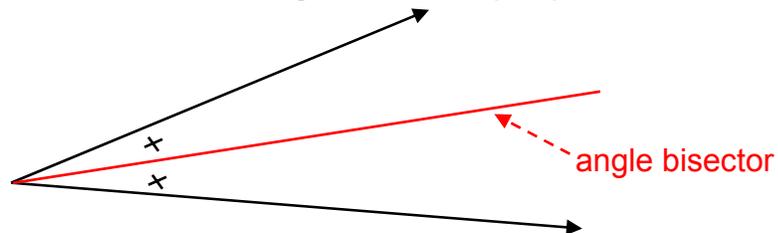
Alternate Angles *Angles* that are between *parallel lines*, but on opposite sides of a *transversal*.



Angle (\angle) When lines, line segments or rays intersect they form angles. (See *size of an angle*)



Angle Bisector The line that divides an *angle* into two equal parts.

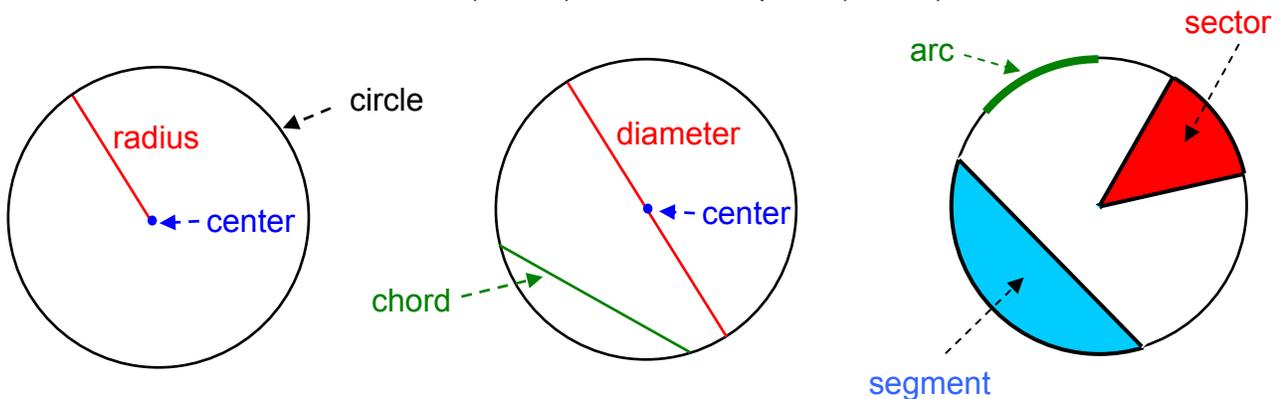


Apex The point where the triangular sides of a pyramid meet.
The point at the tip of a cone. (See *pyramid* or *cone* for illustration)

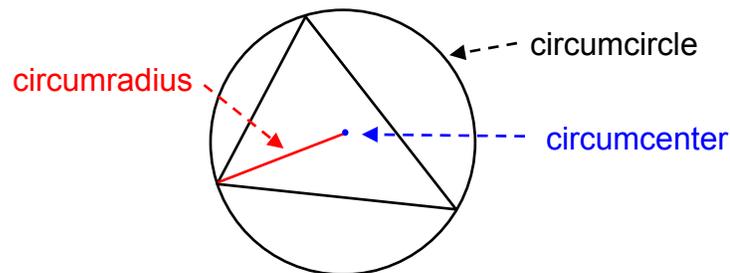
Arc The curved path from one point on a circle (or part of a circle) to another. (See *circle* for illustration)
The lines made by a compass during a construction.



- Axis of Symmetry** See **Line of Symmetry**.
- Bilateral Symmetry** See **Reflective Symmetry**.
- Bisect** Bisect means to cut in half. This can be used with line segments or Angles. (See *angle bisector* and *right bisector*)
- Chord** A *line segment* whose end points lie on a *circle* or an *ellipse*. (See *circle* for illustration)
- Circle** A closed curve, that lies in a plane, with all its points the same distance (*radius*) from a fixed point (center).



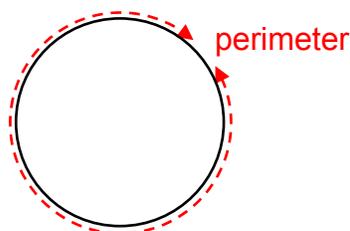
- Circumcircle** The *circle* that passes through the three *vertices* of a *triangle*.



- Circumcenter** The center of the *circumcircle* (See *circumcircle* for illustration)

- Circumradius** The radius of the *circumcircle* (See *circumcircle* for illustration)

- Circumference** The *perimeter* of a *circle*. The circumference is the path around the circle or the length of that path.



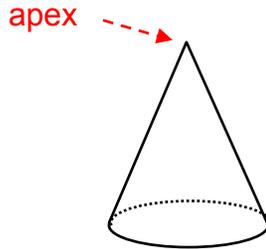


Complementary Angles

Angles that add to 90° .

Cone

A solid with a *circle* as a base and a smooth side that ends in a *point*. The point is called the *apex*.

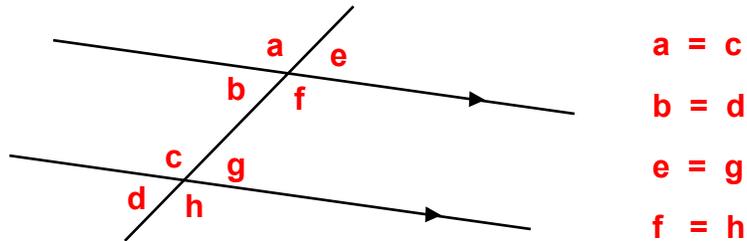


Congruent (\cong)

Two shapes are congruent when all the sides and angles of one shape exactly match those of the other shape.

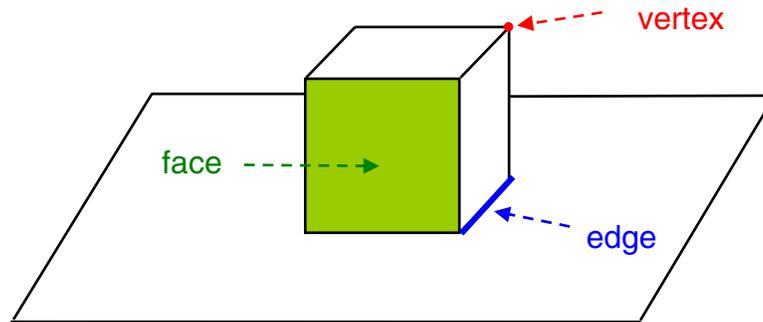
Corresponding Angles

Four pairs of angles formed at *parallel lines* on the same side of a *transversal* and in the same relative position with respect to the parallel lines (both angles are either above or below the parallel lines).



Cube

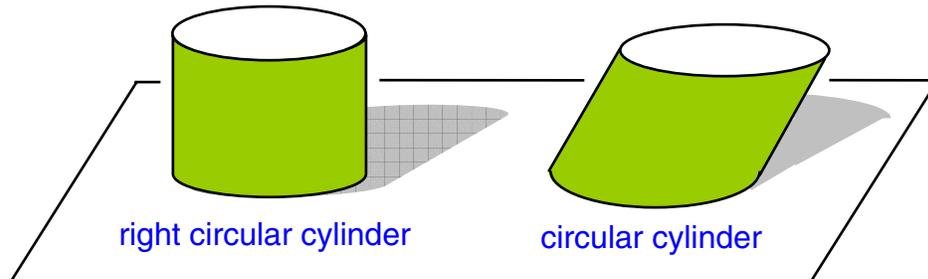
A solid shape which has six *congruent squares* for its *faces*. The faces and *edges* are *perpendicular* to each other. A cube has 8 *vertices* and 12 *edges*.



**Cylinder**

A solid shape with two identical parallel circular faces and a smooth surface that joins the circular faces. If that surface were flattened out, it would form a rectangle.

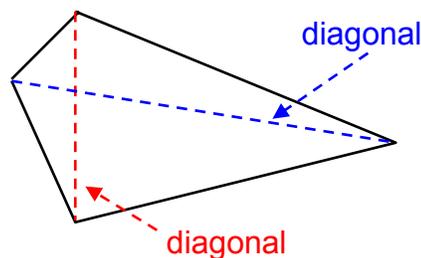
If the circular faces are *perpendicular* to the surface joining the ends, it is called a '**right circular cylinder**'.

**Decagon**

A ten sided *polygon*. A **regular** decagon has ten equal sides and ten equal angles. (See *polygon* for illustration)

Diagonal

A *line segment* drawn from a *vertex* of a *quadrilateral* to the opposite vertex.

**Diameter**

A *chord* that passes through the *center* of the *circle*. It can also mean the length of the diameter. (See *circle* for illustration)

Degree(s) (°)

A unit used to measure the *size of an angle*. Each degree is $\frac{1}{360}$ of a *full turn*. The math symbol for degree is shown in brackets.

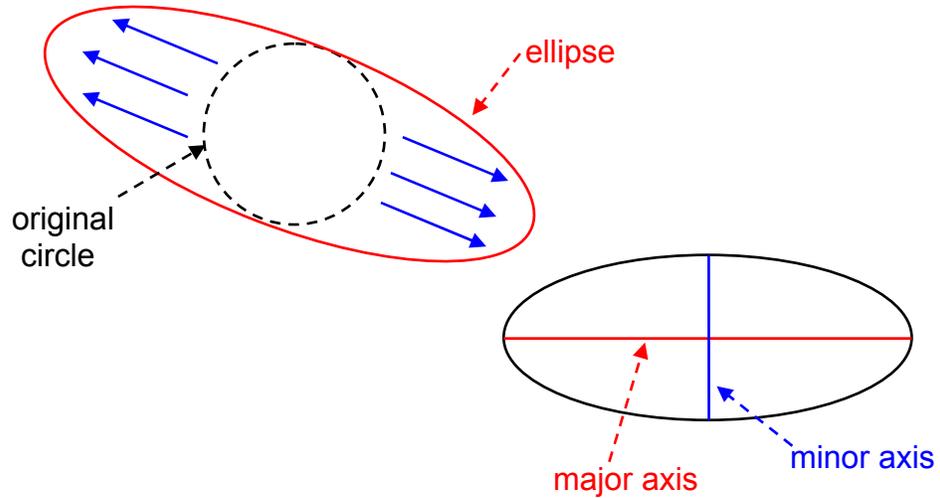
Edges

The *line segments* where *faces* meet on a solid shape (see *cube* for illustration).



Ellipse

The smooth closed curve that is formed when a *circle* is stretched uniformly in two opposite directions.



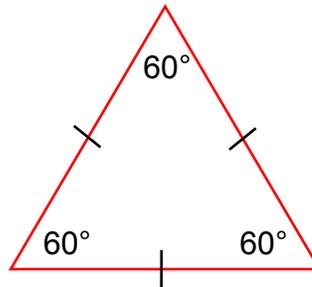
Endpoints

The end points of a *line segment*.



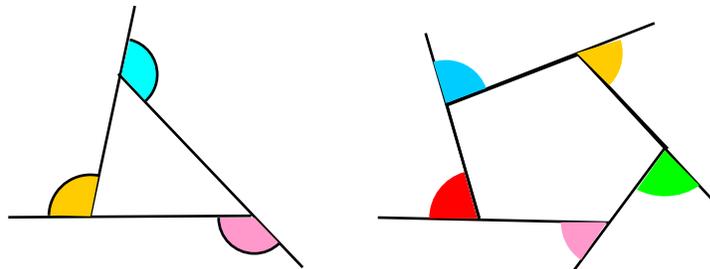
Equilateral Triangle

A triangle that has three sides of equal length and each interior angle is 60° .



Exterior Angle

An angle between the side of a triangle and an extended side of a triangle. For a polygon, it is an angle between a side and an adjacent extended side.

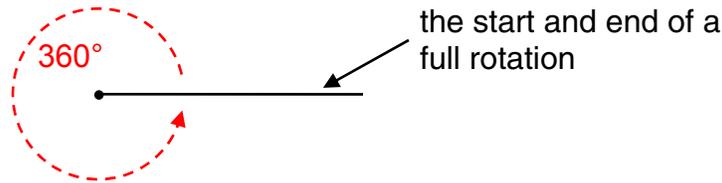


**Faces**

The surfaces that enclose a solid shape (see *cube* for illustration).

Full Turn

A 360° angle. A rotation through an angle of 360° (sometimes called a **full rotation**).

**Half Turn**

A 180° angle. A rotation through an angle of 180° .

**Heptagon**

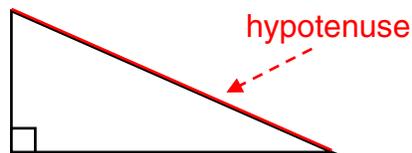
A seven-sided polygon. A **regular** heptagon has seven equal sides and seven equal angles. (See *polygon* for illustration)

Hexagon

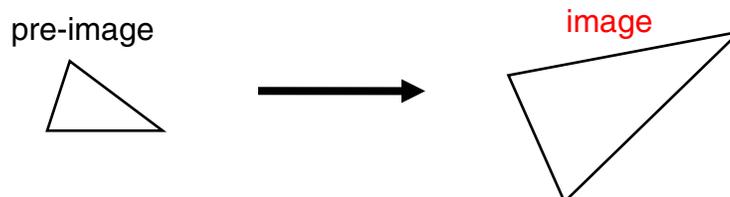
A six-sided *polygon*. A **regular** hexagon has six equal sides and six equal angles. (See *polygon* for illustration)

Hypotenuse

In a *right triangle*, the hypotenuse is the side opposite the *right angle*.

**Image**

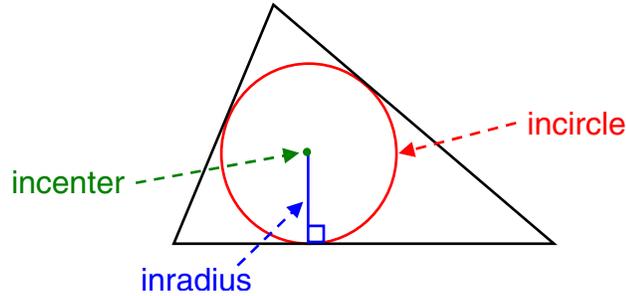
A shape after it has undergone a *transformation*.





Incircle

The circle that just touches the three sides of a *triangle* (sometimes called the **inscribed circle**)



Incenter

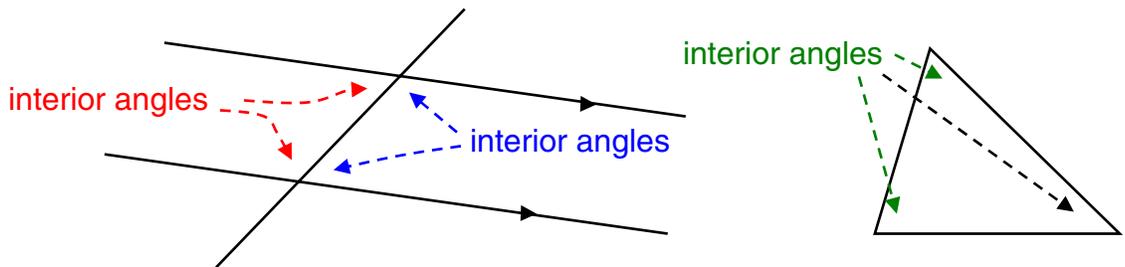
The *center* of the *incircle*. (See *incircle* for illustration)

Inradius

The *radius* of the *incircle*. (See *incircle* for illustration)

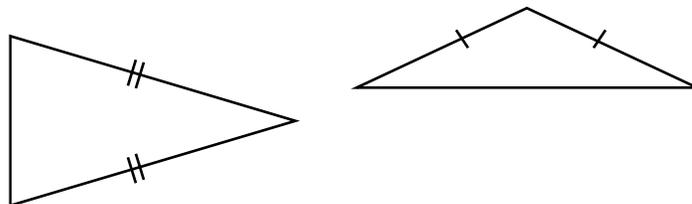
Interior Angles

The angles that are between *parallel lines* but on the same side of a *transversal*. The angles inside a triangle or polygon.



Isosceles Triangle

A *triangle* that has two sides of equal length.



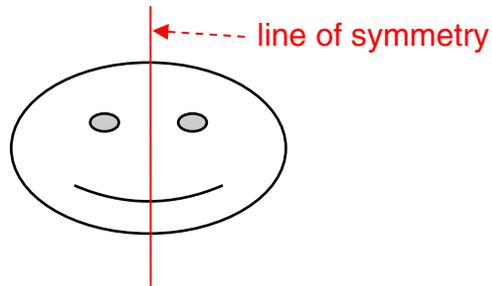
Line

A line is a straight path that passes through any two points and goes forever in two directions.

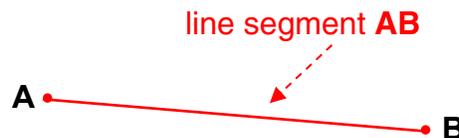


**Line of Symmetry**

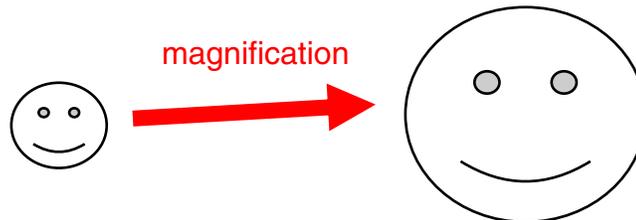
The *mirror* line used in a *reflection* that reflects a shape exactly on top of itself (sometimes called the **axis of symmetry**).

**Line Segment**

The part of a line that is between two points called *endpoints*.

**Magnification**

A *transformation* that changes only the size of a shape (sometimes magnifications are called **dilations**).

**Magnification Factor**

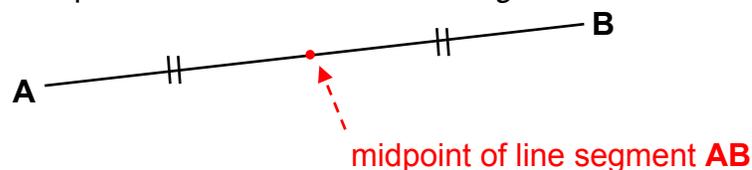
The number that all the lengths of a pre-image shape are multiplied by to get the image shape during a *magnification*. If it is greater than 1, the image is larger than the pre-image. If it is smaller than 1, the image is smaller than the pre-image.

Major Axis

The longest *chord* in an *ellipse* that passes through its exact center. (See *ellipse* for illustration)

Midpoint

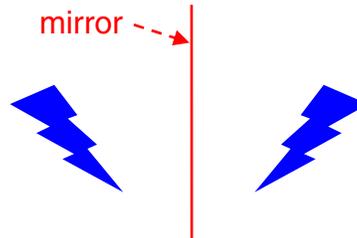
The point in the middle of a *line segment*.





Minor Axis The shortest *chord* in an *ellipse* that passes through its exact center. (See *ellipse* for illustration)

Mirror The line used in the *reflection transformation*.



Net A pattern that can be cut out and folded to form a model of a solid.

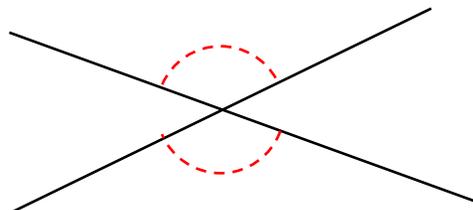
Nonagon A nine-sided polygon. A **regular** nonagon has nine equal sides and nine equal angles. (See *polygon* for illustration)

Obtuse Angle An *angle* that measures more than 90° but less than 180° .

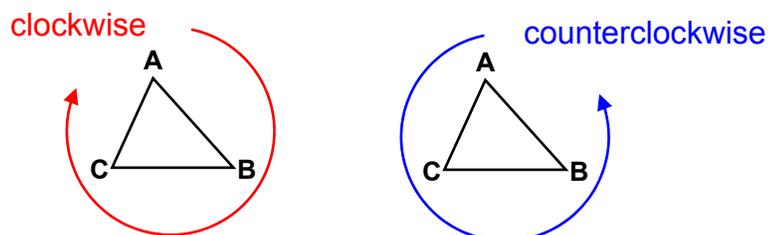
Obtuse Triangle A *triangle* that has one *obtuse angle*.

Octagon An eight-sided polygon. A **regular** octagon has eight equal sides and eight equal angles. (See *polygon* for illustration)

Opposite Angles Angles that are on opposite corners at an intersection (sometimes called **vertically opposite angles**).



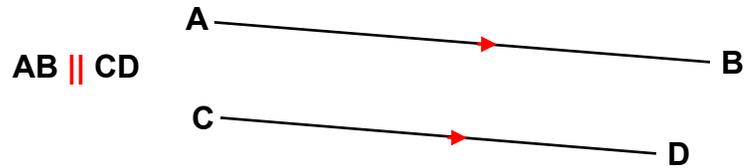
Orientation Clockwise or counterclockwise direction as you travel around the perimeter of a plane shape.





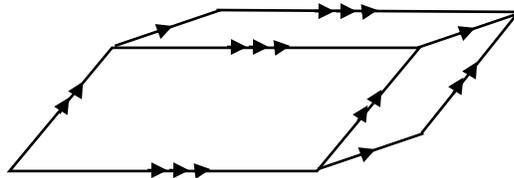
Parallel Lines
(||)

Lines that do not intersect. Indicated with small arrows on the lines. The math symbol for parallel line is shown in brackets.



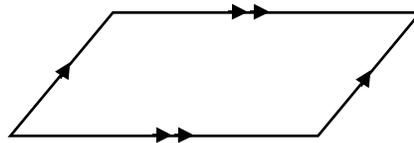
Parallelepiped

A solid shape which has six parallelograms for its faces.



Parallelogram

A *quadrilateral* that has two pairs of parallel sides.



Pentagon

A five-sided *polygon*. A **regular** pentagon has five equal sides and five equal angles. (See *polygon* for illustration)

Perimeter

The path around a closed shape or the length of that path.

Perpendicular

A line that is at *right angles* to another line.

Perpendicular Lines (⊥)

Lines that intersect at right angles. The math symbol for perpendicular line is shown in brackets.

Plane

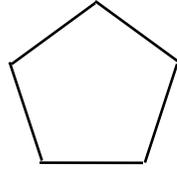
An infinitely large flat surface.

Point

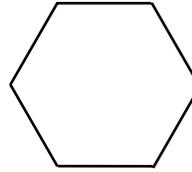
A point is a location. A point has no size, length or width.

**Polygon**

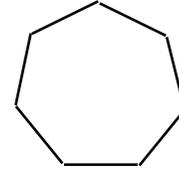
A closed shape formed by five or more line segments. Sometimes *quadrilaterals* and *triangles* are considered to be polygons.



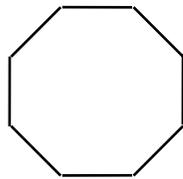
pentagon
(5 sides)



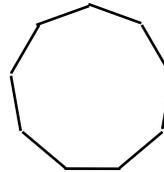
hexagon
(6 sides)



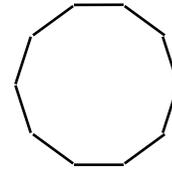
heptagon
(7 sides)



octagon
(8 sides)



nonagon
(9 sides)



decagon
(10 sides)

Polyhedron
(pl. **Polyhedra**)

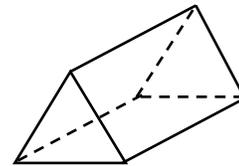
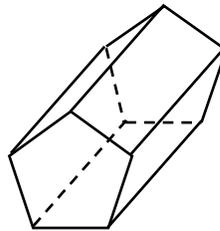
Solid shapes which have surfaces made from *triangles*, *quadrilaterals* and *polygons*.

Pre-image

A point or shape before it has undergone a *transformation*.
(See *image* for illustration)

Prism

A solid that has two parallel polygonal ends and rectangular sides joining the polygons. The ends can also be triangles or quadrilaterals.

**Proof**

A logically reasoned explanation of why something is true.

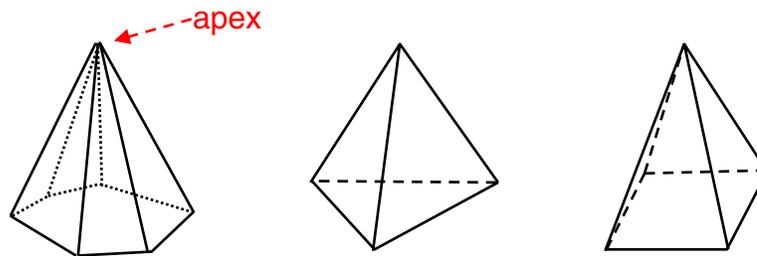
Protractor

A tool for measuring the *size of an angle*.



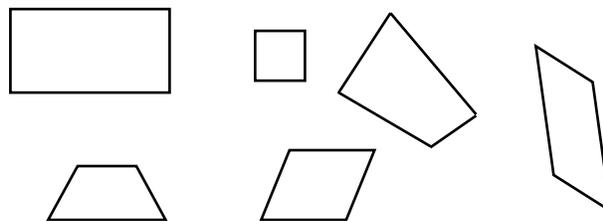
Pyramid

A solid shape that has a *polygonal* base and sides that are triangles. The triangular sides meet at a point called the *apex*. The base of a polygon can be any polygon but most often is either a triangle or a quadrilateral.



Quadrilateral

A closed shape formed by four line segments.



Radius (pl. Radii)

The line segment from the center of a *circle* to the circle. The line segment from the center of a *sphere* to the surface of the sphere. Radius can also mean the length of a radius.

Radius of an Arc

The distance from the center of an *arc* to the arc itself.

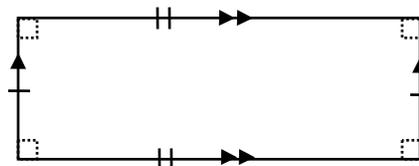
Ray

A ray is the part of a straight *line* that starts at a point and goes in one direction forever.



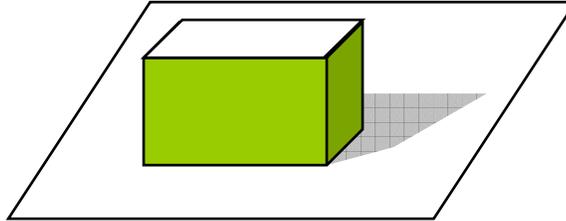
Rectangle

A *parallelogram* that has four *right angles*. Its opposite sides have equal lengths.



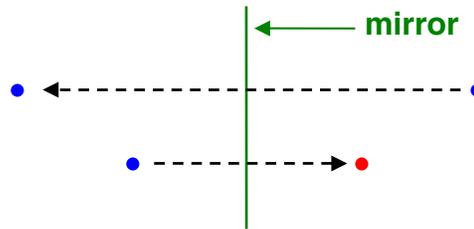
**Rectangular
Parallelepiped**

A solid shape formed with 6 faces that are *rectangles* or *squares*. It is a *parallelepiped* in which the *faces* meet at right angles.

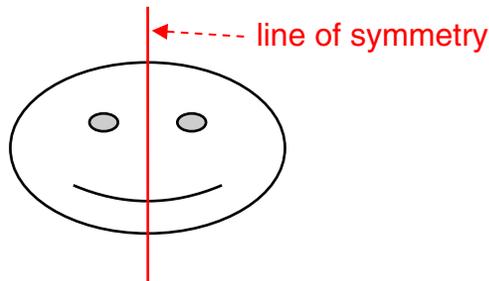
**Reflection**

A *transformation* that moves a point to another point that is an equal distance on the other side of a line.

The line is called the **mirror**. The mirror is the *right bisector* of the line joining a *pre-image* point to its *image*.

**Reflective
Symmetry**

A shape has reflective symmetry if it can be reflected onto an exact copy of itself and is in the same position. The mirror is called the **line of symmetry**. Reflective symmetry is sometimes called **bilateral symmetry** or **line symmetry**.

**Reflex Angle**

An *angle* that measures more than 180° .

Regular Polygon

A *polygon* which has equal angles and equal sides.
(See *polygon* for illustration)



Rhombus
(pl. **Rhombi**)

A *parallelogram* that has four sides of equal length.

Right Angle

An *angle* that measures 90° .

Right Bisector

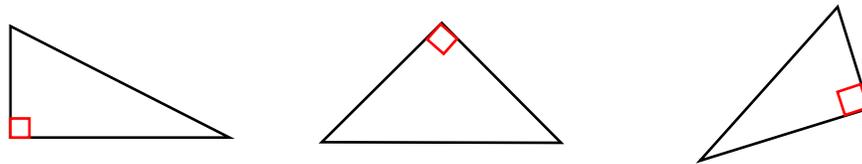
A line that is *perpendicular* to a *line segment* and passes through the *midpoint* of that line segment. Right bisector is sometimes called **perpendicular bisector**.

Right Circular Cylinder

A cylinder whose circular ends are perpendicular to the curved faces.

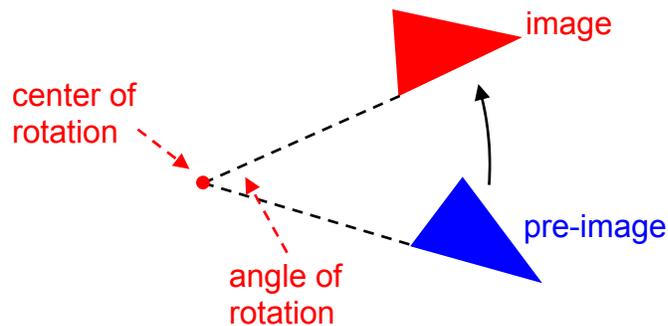
Right Triangle

A *triangle* that has one right angle.



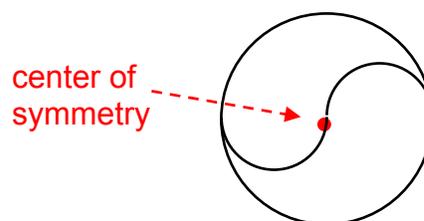
Rotation

A *transformation* that moves points and shapes by turning them around a fixed point through a fixed angle. The fixed point is called the **center of rotation**. The fixed angle is called the **angle of rotation**.



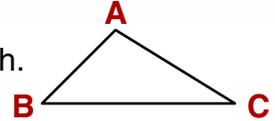
Rotational Symmetry

A shape has rotational symmetry if it can be rotated onto an exact copy of itself and is in the same position. The center of rotation is called the **center of symmetry**.



**Scalene Triangle**

A *triangle* that has three sides of different length.

**Sector**

A region inside a *circle* enclosed by an *arc* of the circle and the radii to the ends of the arc. (See *circle* for illustration)

Segment

A region inside a *circle* enclosed by an *arc* and a *chord*. (See *circle* for illustration)

Similar

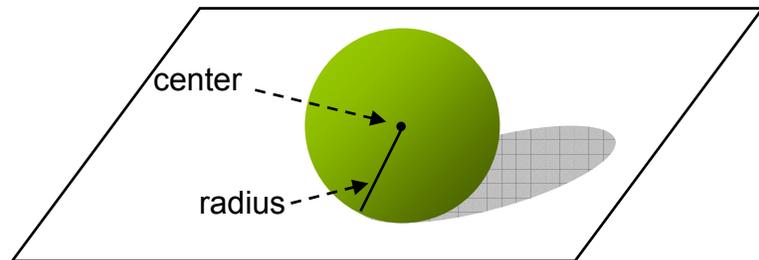
Two shapes are similar when all the angles of one shape match the angles of the other shape.

Size of an Angle (Δ)

How much you have to turn one line of an *angle* so that it lies on top of the other line of the angle. The size of an angle is measured in *degrees* ($360^\circ = 1$ full turn). (Sometimes called the **measure** of an angle)

Sphere

A solid shape whose surface is formed from all points that are a fixed distance (*radius*) from a fixed point (**center**).

**Square**

A *quadrilateral* with four right angles and four equal sides.

Straight Angle

An *angle* that measures 180° .

Supplementary Angles

Angles that add to 180° .

Symmetry

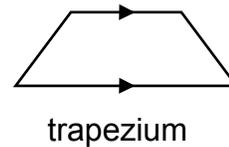
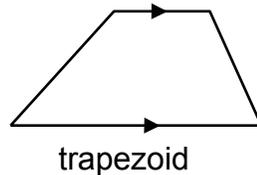
A shape has symmetry if it can be transformed into a *congruent* shape that lies on top of itself. (See *reflective symmetry* or *rotational symmetry* for illustrations)

Tessellation

A pattern created by completely covering a surface with similar shapes.



- Theorem** A statement of a mathematical fact that can be proved.
(See *proof*)
- Tiles** The shapes used to make a *tessellation*.
- Transformation** A transformation is a rule or method of changing a shape.
Rotations, reflections, translations and **magnifications** are examples of transformations.
- Translation** A *transformation* that moves one shape to a different place without rotation or reflection. (Sometimes called a **glide** or a **shift**)
- Transversal** A line that intersects *parallel* lines.
- Trapezoid** A *quadrilateral* that has only one pair of *parallel* sides. This is called a *trapezium* depending on whether or not it has *reflective symmetry*.



- Triangle (Δ)** A closed shape formed by three *line segments*. The line segments meet at three points called *vertices*.
- Vertex**
(pl. **Vertices**) The point where the lines that form an *angle* meet.
A point where the sides of a *triangle* or sides of a *polygon* meet.
The point where *edges* of a solid shape meet.
The points where the corners of tiles in a *tessellation* meet

