

# Geometry Glossary

Welcome to the Geometry Glossary. In this glossary I'll define most of the words you'll ever need in geometry. You'll also see some algebra terms, and maybe some trig terms. If I've missed some, be sure to E-mail (link disabled) me.

Caution: This is a graphics-intense page, although almost all of them are small.

Caution: This file is about 60 KB, even without the graphics.

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)



- an [angle](#)



- the measure of angle ABC



- the symbol for degrees



- see [composite transformation](#)



- a 90 degree [angle](#); a [right angle](#)



- tick marks show that the corresponding lines are of equal length; any number of ticks can be used to distinguish groups of lines



- a circle



- implies; see [conditional](#)



- if and only if; see [biconditional](#)



- [parallel](#)



- parallel lines



- [perpendicular](#)



- [congruent](#)



- not; see [inverse](#), [contrapositive](#)



- similar; see [similar figures](#)



- set markers



- [pi](#); \*for those of you who can't read math tags yet)



- a [null set](#)



- 'prime'; designates an [image](#) corresponding to the [preimage](#) using the same variable; see [reflection](#)



- a is an element in b

## Acute angle

- an [angle](#) whose measure is greater than 0 but less than 90 degrees; see [obtuse angle](#)

## Adjacent angles

- 2 nonstraight and nonzero angles that have a common side in the interior of the angle formed by the noncommon sides

## Algorithm

- a sequence of steps leading to a desired end

## Alternate exterior angles

- [exterior angles](#) on alternate sides of the [transversal](#) (not on the same parallel line)

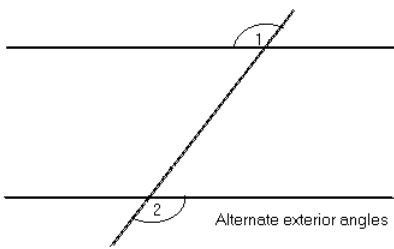
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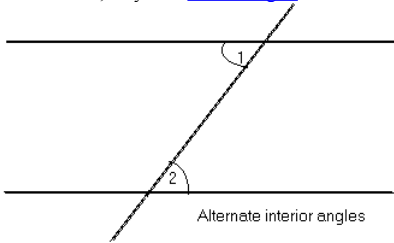


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**Alternate interior angles**

- ditto as above, only with [interior angles](#)

**Altitude**

- height

**Altitude of a conic solid**

- the length of a segment whose endpoints are the [vertex](#) and a point on the [plane](#) of the [base](#) that is [perpendicular](#) to the plane of the base

**Altitude of a cylindrical solid**

- the distance between the [planes](#) of the [bases](#)

**Altitude of a trapezoid**

- the distance between the [bases](#) of a [trapezoid](#)

**Altitude of a triangle**

- the [perpendicular](#) segment from a [vertex](#) to the line containing the opposite side of a [triangle](#)

**Ambiguous**

- not stable; changing

**Analytic geometry**

- see [coordinate geometry](#)

**Angle**

- the union of 2 rays that have the same endpoint; measured in degrees or radians (trig.); the five types of angles are [zero](#), [acute](#), [right](#), [obtuse](#), and [straight](#)

**Angle bisector**

- a ray that is in the interior of an angle and forms two equal angles with the sides of that angle

**Angle measure between a line and a plane**

- the smallest of the angles formed when a [line](#) intersects a [plane](#)

**Angle side**

- one of the two rays forming an angle

**Antecedent**

- the 'if' part of a [conditional](#); represented by  $P$ ; aka **hypothesis**, **given**, **problem**; see [consequent](#)

**Area**

- the amount of space taken up in a [plane](#) by a figure

**Arc**

- a path from one [node](#) in a [network](#) to another; doesn't have to be straight & can be more than 1 line between 2 nodes; part of a circle; see [minor arc](#), [major arc](#)

**Arc length**

- the distance between an [arc's](#) endpoints along the path of the [circle](#)

**Area( $F$ )**

- the area of figure  $F$

**Automatic drawer**

- a computer program that lets you build constructions

**Axis**

- the line containing the [vertex](#) of a [conic solid](#) and the center of the [base](#)

**Base**

- the side of an [isosceles triangle](#) whose endpoints are the [vertices](#) of the base angles

**Base angle**

- the [angle](#) opposite one of the [equilateral](#) sides in an [isosceles triangle](#)

**Base angle of a trapezoid**

- consecutive angles that share a base of a [trapezoid](#)

**Base of a conic solid**

- the planar [region](#) that forms the widest point of a [conic solid](#); often labeled as the 'bottom' of the conic solid, it determines the exact shape of the conic solid

## Geometry Glossary

### Base of a cylindrical solid

- the original [region](#) and its [translation image](#)

### Base of a trapezoid

- the parallel sides of a [trapezoid](#)

### Biconditional

- a [conditional](#) and its [converse](#) where the converse is also true; uses the words *if and only if*; written  $p \iff q$

### Bilateral symmetry

- see [reflection symmetry](#)

### Bisector of an angle

- see [angle bisector](#)

### Bisector of a segment

- any [plane](#), [point](#) or two-dimensional figure containing the the [midpoint](#) of the [segment](#) and no other points on that segment

### Box

- a [surface](#) made up of [rectangles](#); a **rectangular parallelepiped**

### Capacity

- see [volume](#)

### Cartesian plane

- a [coordinate plane](#)

### Center of a circle

- the point that all points in the circle are equidistant from

### Center of a rotation

- the point where the two intersecting lines of a [rotation](#) meet

### Center of gravity

- the [mean](#) of the coordinates of points in a [figure](#), whether one, two, or three-dimensional

### Central angle of a circle

- an [angle](#) whose [vertex](#) is the [center](#) of the [circle](#)

### Chord of a circle

- a segment whose endpoints are on a [circle](#)

### Circle

- the set of points on a plane at a certain distance ([radius](#)) from a certain point ([center](#)); a [polygon](#) with infinite sides

### Circularity

- when on a search, circling back to a previous place visited (definition, web site, etc.), usually unhelpful or redundant

### Circumference

- the [perimeter](#) of a [circle](#)

### Clockwise

- in [orientation](#), the direction in which the points are named when, if traveling along the line, the interior of the polygon is on the right (got all that?); see [counterclockwise](#)

### Coincidental lines

- [lines](#) that are identical (one and the same)

### Collinear

- in the same line

### Compass

- a drawing tool used to draw circles at different radii

### Complementary angles

- 2 angles whose measures, when added together, equal 90 degrees; see [supplementary angles](#)

### Composite transformation

- The composite of a first [transformation](#)  $s$  and a second transformation  $\tau$  is the transformation [mapping](#) a point  $P$  onto  $\tau(s(P))$ . When written  $\tau_2 \circ \tau_1$ , do  $\tau_1$  first; see [translation](#), [rotation](#), [glide reflection](#), [similarity transformation](#)

### Concave

- see [nonconvex](#)

### Concentric circles

- circles that share the same center, but have different radii

### Conditional

- a statement that tells if one thing happens, another will follow; written as  $p \implies q$ ; see [antecedent](#), [consequent](#), [converse](#), [inverse](#), [contrapositive](#)

### Cone

- the [surface](#) of a [conic solid](#) whose [base](#) is a [circle](#); see [right cone](#)

### Congruence transformation

- see [isometry](#)

### Congruent

- equilateral, equal, exactly the same (size, shape, etc.)

### Congruent figures

- two figures where one is the [image](#) of the other under a [reflection](#) or [composite](#) of reflections; written  $A \stackrel{R}{\cong} B$

# Geometry Glossary

## Conic section

- [plane section](#) of a [cone](#)

## Conic solid

- the set of points between a point (the [vertex](#)) and a non-coplanar [region](#) (the [base](#)), including the point and the region; see [cone](#), [pyramid](#), [regular pyramid](#), [right cone](#)

## Conjecture

- an educated guess or opinion; a hypothesis

## Consecutive sides

- [sides](#) of a [polygon](#) that share an endpoint

## Consecutive vertices

- endpoints of a single [side](#) of a [polygon](#)

## Consequent

- the 'then' part of a [conditional](#); represented by  $q$ ; aka **conclusion**, **prove**, **answer**

## Constant of an equation

- the term that has no variable in an equation; example:  $c$

## Construction

- a precise way of drawing which allows only 2 tools: the [straightedge](#) and the [compass](#)

## Contraction

- a [size change](#) where  $k$  is less than 1

## Contrapositive

- a type of [conditional](#); if not  $q$ , then not  $p$ ; written  $\sim q \implies \sim p$ ; see [inverse](#)

## Converse

- a reversed [conditional](#); if a conditional is  $p \implies q$ , than its converse is  $q \implies p$

## Convex set

- a set of points in which all segments connecting points of the set lie entirely in the set; There are three things one can do to see if a figure is convex - look for "dents", extend the segments (they shouldn't enter the figure), and connect any two points within the figure with a segment (if any part of the segment lies outside the figure, it's concave); see [nonconvex set](#)

## Coordinate

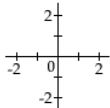
- a number that identifies (or helps to identify) a point on a number line (or on a plane, or in space)

## Coordinate geometry

- the study of geometrically representing ordered pairs of numbers

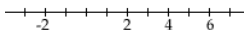
## Coordinate plane

- a plane in which every point is identified with exactly 1 number and vice versa; a two-dimensional graph



## Coordinatized line

- a line on which every point is identified with exactly 1 number and vice versa; a one-dimensional graph. The distance between 2 parts on a coordinatized line is the absolute value of the difference of their coordinates.



## Coplanar

- within the same plane

## Corollary to a theorem

- a [theorem](#) that is easily proved from the first

## Corresponding angles

- any pair of angles in similar locations with respect to a [transversal](#)

## Coterminal angles

- two [angles](#) that have the same [terminal side](#)

## Counterclockwise

- in [orientation](#), the direction in which points are named when, if travelling on the line, the interior of the figure is on the left side; see [clockwise](#)

## Counterexample

- a situation in a conditional for which the antecedent is true, but the conditional is false; aka **contradiction**

## Cylindric solid

- the set of points between a [region](#) and its [translation](#) in [space](#), including the region and its [image](#)

## Cylinder

- the surface of a cylindric solid whose base is a [circle](#); see [right cylinder](#)

## Cylindric surface

- the [union](#) of the [bases](#) and the [lateral surface](#)

## Decagon

- a ten-sided [polygon](#)

## Degree

- unit used to measure angles

**Dense line**

- the line that contains the shortest path between two points

**Diagonal**

- a segment in a [polygon](#) whose endpoints are 2 nonconsecutive vertices

**Diameter of a circle (or sphere)**

- the [segment](#) whose endpoints are points on a [circle](#) (or [sphere](#)) that contains the [center](#) of the circle as its [midpoint](#); the length of that segment

**Dilation**

- see [size change](#)

**Dilatation**

- see [size change](#)

**Dimensions**

- the width, length, and height of a plane or space figure

**Direction**

- the way a number goes - positive or negative

**Direction of a translation**

- the compass direction in which a translation goes (duh)

**Discrete Line**

- a line made of dots with space inbetween their centers

**Distance**

- the distance between points **A** and **B** is written as **AB**

**Distance between 2 parallel lines**

- the length of a [perpendicular](#) segment between them

**Dodecagon**

- a twelve-sided [polygon](#)

**Dot**

- a description of a [point](#) in which the point has a definite size

**Duodecagon**

- a twelve-sided [polygon](#)

**Drawing**

- a freehand picture using any tool; see [construction](#)

**Edge**

- a segment that helps to make up a [face](#)

**Empty set**

- see [null set](#)

**Ends of a kite**

- the common vertices of the [equilateral](#) sides of a [kite](#)

**Enneagon**

- a nine-sided [polygon](#)

**Equiangular**

- having angles of the same measure

**Equidistant**

- the same distance from something

**Equilateral**

- equal in length

**Equilateral triangle**

- a [triangle](#) whose sides are equal in length

**Even node**

- a [node](#) that has an even number of arcs

**Exclusive or**

- one or the other, but not both

**Existential statement**

- a conditional that uses the word 'same'

**Expansion**

- a [size change](#) where  $k$  is greater than 1

**Exterior angles**

- angles outside of two lines cut by a [transversal](#); see [interior angles](#)

**Exterior of an angle**

- the [nonconvex](#) set formed by an angle that measures less than 180 degrees; see [interior of an angle](#)

**Extremes**

- in the [proportion](#)  $\frac{a}{b} = \frac{c}{d}$ ,  $a$  and  $d$ ; see [means](#)

**Face**

## Geometry Glossary

- a [polygonal](#) region of a [surface](#)

### Family tree

- [hierarchy](#); tower or pyramid of power or importance

### Figure

- a set of points

### 45-45-90 triangle

- an [isosceles right triangle](#)

### Fundamental region

- a region used in a [tesselation](#)

### Geometric mean

- the number  $g$  such that for two numbers  $a$  and  $b$ ,  $\frac{a}{g} = \frac{g}{b}$

### Given

- information assumed to be true in a [proof](#)

### Glide reflection

- a type of [composite transformation](#) where a figure is [reflected](#) and then [translated](#) in a parallel direction

### Goldbach's Conjecture

- if  $n$  is an even number greater than 2, then there are always 2 prime numbers whose sum is  $n$

### Grade

- the tilt of a real-life object in relation to the horizontal, often used to determine how steep a hill is

### Graph theory

- the mathematics of complicated networks

### Great circle

- the [circle](#) formed by the [intersection](#) of a [sphere](#) and the [plane](#) that contains its [center](#) and that divides the sphere into two [hemispheres](#); see [small circle](#)

### Grid

- a [tesselation](#) of [congruent squares](#) sometimes used to measure distance

### Harmonic mean

- two times the product divided by the sum of the two numbers

### Hemisphere

- half of a [sphere](#)

### Heptagon

- a seven-sided [polygon](#)

### Hexagon

- a six-sided [polygon](#)

### Hidden lines

- broken lines used to signify lines that normally wouldn't be seen in a drawing

### Hierarchy

- a chart that shows varying levels of importance

### Horizontal line

- a line whose slope is zero

### Hypotenuse

- the side opposite the right angle in a [right triangle](#)

### Icosahedron

- a 20-sided [solid](#); each side is in the shape of a triangle

### Identity reflection

- a [reflection](#) where the [preimage](#) and the [image](#) are the same; see [reflection symmetry](#)

### Identity transformation

- a [size change](#) where  $k$  equals 1

### IFF

- if and only if; see [biconditional](#)

### If-then statement

- see [conditional](#)

### Image

- the [reflection](#) of the [preimage](#)

### Improper subset

- a [subset](#) that includes the entire parent set; see [proper subset](#)

### Included angle

- the [angle](#) made by two sides of a [polygon](#)

### Included side

- the side between two [angles](#) in a [polygon](#)

### Inclusive or

- one or the other, or both; and/or

**Infinite**

- uncountable

**Initial side**

- the side that the measurement of an angle starts from; see [terminal side](#)

**Instance of a sentence**

- a situation where the statement is true

**Interior angles**

- [angles](#) between two lines cut by a [transversal](#); see [exterior angles](#)

**Interior of an angle**

- the [convex](#) set formed by an angle that measures less than 180 degrees; see [exterior of an angle](#)

**Interior of a circle**

- the set of points whose distance from the [center](#) of the [circle](#) is less than that of the [radius](#)

**Intersecting planes**

- [planes](#) that share a [line](#)

**Intersection of two sets A and B**

- the set of elements which are in both A and B; written  $A \cap B$

**Inverse**

- a form of [conditional](#); if not p, then not q; written  $\sim p \implies \sim q$

**Irrational number**

- decimal number that never ends, never repeats (Ex: pi)

**Irregular region**

- region whose boundary is not the [union](#) of circular arcs or segments

**Isometry**

- a [transformation](#) that keeps the same size and shape of a figure but moves it to a new location; see [reflection](#), [rotation](#), [translation](#), [glide reflection](#)

**Isosceles trapezoid**

- a [trapezoid](#) that has a pair of [equiangular base angles](#)

**Isosceles triangle**

- a [triangle](#) with two sides of equal length

**Kite**

- a [quadrilateral](#) that has two distinct pairs of consecutive [equilateral](#) sides

**L.A.**

- lateral area

**Lateral area**

- the [area](#) of the [lateral surface](#) of a [solid](#)

**Lateral edge**

- a segment whose endpoints are corresponding points of a [cylindric solid's bases](#), or whose endpoints are the [vertex](#) of a [conic solid](#) and a vertex of its [base](#)

**Lateral faces**

- the [faces](#) of the lateral surface of a [prism](#), or a [face](#) of a [pyramid](#) that is not a [base](#)

**Lateral surface**

- the [surface](#) not included in the [base\(s\)](#)

**Lattice points**

- points in the coordinate plane with integer coordinates

**Leg of a right triangle**

- a side of a [right triangle](#) that include the 90 degree angle

**Limit**

- the actual area of a region

**Line**

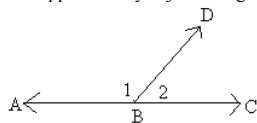
- a two-dimensional object that has no endpoints and continues on forever in a plane; formed of infinite points; the 3 orientations that lines may have are [horizontal](#), [vertical](#), [oblique](#), and [skew lines](#); written  $\overleftrightarrow{AB}$ .

**Linear equation**

-  $Ax + By + C = 0$

**Linear pair**

- 2 supplementary adjacent angles whose noncommon sides form a line



**Linear term of an equation**

- the term with a variable, but no exponent in an equation; example:  $B_y$  in a linear equation

**Line number**

- numbers on the left side of a computer screen that tell the computer in what order to do instructions in a computer programming language such as BASIC

# Geometry Glossary

## Line of reflection

- the line that is reflected over in a [reflection](#)

## Line perpendicular to a plane

- a line [perpendicular](#) to every line in the [plane](#) that it intersects (or any one of them)

## Lines of sight

- lines from an eye to what it sees that show perspective and what size to draw it

## Location

- one of the four main description of a [point](#)

## Locus

- the set that satisfies a given condition

## Magnitude

- the value of a number; its distance from the origin

## Magnitude of a rotation

- the amount of [rotation](#) in degrees

## Magnitude of a translation

- the distance between any point and its [image](#)

## Major arc

- an [arc](#) whose endpoints form an [angle](#) over 180 degrees with the [center](#) of the [circle](#); written  $\widehat{ADB}$  - the extra letter is used to distinguish it from a minor arc; see [minor arc](#)

## Mapping

- making a [transformation](#)

## Matrix

- arrangement of [pixels](#)

## Mean

- average

## Meaning

- a version of a [conditional](#) that defines a term, where the term is in the [antecedent](#); see [sufficient condition](#)

## Means

- in the [proportion](#)  $\frac{a}{b} = \frac{c}{d}$ ,  $b$  and  $c$ ; see [extremes](#)

## Measure

- the amount of openness in an [angle](#)

## Measure of an arc

- The measure of [minor arc](#)  $\widehat{AB}$  or [major arc](#)  $\widehat{ADB}$  is the measure of its [central angle](#).

## Median

- the segment connecting the vertex of an angle in a triangle to the midpoint of the side opposite it

## Midpoint

- the point  $M$  of  $\overline{AB}$  where  $AM = MB$

## Minor arc

- an [arc](#) whose endpoints form an [angle](#) less than 180 degrees with the [center](#) of the [circle](#); written  $\widehat{AB}$ ; see [major arc](#)

## Net

- a 2-D figure that can be folded on its segments or curved on its boundaries to form a [3-D figure](#); see article [here](#)

## Network

- a group of [nodes](#) and [arcs](#)

## n-gon

- a [polygon](#) with  $n$  sides

## Node

- a description of a [point](#) in a [network](#) where it is possible for two different segments to share the same endpoints

## Nonagon

- a nine-sided [polygon](#)

## Nonconvex set

- a set of points in which **not** all segments connecting points of the set lie entirely in the set; synonym: concave; see [convex set](#)

## Non-Euclidean geometry

- [solid geometry](#)

## Non-included side

- the side of a [triangle](#) that is not included by 2 given [angles](#)

## Non-overlapping regions

- regions that don't share interior points

## Nonperspective drawing

- a three-dimensional drawing that doesn't use [perspective](#)

## Null set

- a set with nothing in it

**Number line**

- a [coordinatized line](#)

**Oblique prism or cylinder**

- a non-right [prism](#) or [cylinder](#)

**Oblique line**

- a line that has a definite slope not equal to zero

**Obtuse angle**

- an [angle](#) whose measure is greater than 90 but less than 180 degrees; see [acute angle](#)

**Octagon**

- an eight-sided [polygon](#)

**Odd node**

- a [node](#) with an odd number of arcs

**One-dimensional**

- having length, but no width; examples: a [line](#), a [ray](#), a [segment](#)

**Opposite faces**

- [faces](#) that lie in [parallel planes](#)

**Opposite rays**

- two rays with a common endpoint that form a line

**Ordered pair**

- the two numbers that (called coordinates) are used to identify a point in a plane; written  $(x, y)$

**Ordered triple**

- the three numbers (called coordinates) that are used to identify a point in space; written  $(x, y, z)$

**Orientation**

- in an image change, the direction in which the points named go (i.e., how A's position relates to B's and B's relates to C's); either [clockwise](#) or [counterclockwise](#) for figures

**Overlapping triangles**

- [triangles](#) that share a side or [angle](#)

**Parallel lines**

- two or more coplanar lines that have no points in common or are identical (eg, the same line)

**Parallelogram**

- a [quadrilateral](#) with both pairs of opposite sides [parallel](#)

**Parallelepiped**

- a [prism](#) whose opposite faces are all parallelograms and [congruent](#) (in pairs)

**Parallel planes**

- [planes](#) that have no points in common

**Pentadecagon**

- a 15-sided [polygon](#)

**Pentagon**

- a five-sided [polygon](#)

**Perimeter of a polygon**

- the sum of the lengths of the sides of the [polygon](#)

**Perpendicular bisector**

- the bisector of a segment perpendicular to it

**Perpendicular lines**

- 2 segments, rays, or lines that form a 90 degree angle

**Perpendicular planes**

- [planes](#) in which any two intersecting [lines](#), one in each plane, form a [right angle](#)

**Perspective**

- feeling of depth

**Perspective drawing**

- a drawing in which, in order to show perspective, oblique parallel lines will meet

**Pi**

- written  $\pi$  ( $\pi$  for those of you who can't read math tags yet); the ratio  $C/D$  where  $C$  is the [circumference](#) and  $D$  is the [diameter](#) of a [circle](#); 3.14159265359

**Pixel**

- small dot of color that makes up computer and TV screens

**Plane**

- a two-dimensional group of points that goes on infinitely in all directions; made up of infinite lines

**Plane figure**

- a set of points that are on a plane

**Plane geometry**

- the study of two-dimensional figures in a plane

**Plane section**

- the [intersection](#) of a figure with a [plane](#)

**Point**

- a zero-dimensional figure; while usually left undefined, has four main representations - the [dot](#), the [node](#), the [location](#), and the [ordered pair](#) of numbers

**Polarity of a variable**

- the positivity or negativity of a variable; its [direction](#)

**Polygon**

- a union of 3 or more segments where each segment intersects 2 other segments, one at each endpoint; "many sided"; see [reflex polygon](#)

**Polygonal region**

- the [union](#) of a polygon and its interior

**Polyhedron**

- a [three-dimensional surface](#) which is the [union](#) of polygonal regions and has no holes

**Postulate**

- a statement assumed to be true without proof; see [theorem](#)

**Preimage**

- the original object that is [reflected](#)

**Prism**

- the [surface](#) of a [cylindric solid](#) whose [base](#) is a [polygon](#); see [right prism](#), [parallelepiped](#), [box](#)

**Proof**

- a sequence of justified conclusions used to prove the validity of an [if-then statement](#)

**Proper subset**

- a [subset](#) that doesn't include everything in its parent set; see [improper subset](#)

**Proportion**

- a statement that two [ratios](#) are equal

**Proportional**

- one of four numbers that form a true proportion

**Protractor**

- a tool used to measure angles

**Prove**

- the goal of a proof

**Pyramid**

- the [surface](#) of a [conic solid](#) whose [base](#) is a [polygon](#); see [regular pyramid](#)

**Pythagorean triple**

- a set of three numbers that can be side lengths of a [right triangle](#)

**Q.E.D.**

- "*quod erat demonstrandum*" (Latin) This stems from medieval translators' habitual tendency of translating the Greek for "this was to be demonstrated" to the Latin phrase above. This appeared originally at the end of many of Euclid's propositions, signifying that he had proved what he set out to prove.

**Q.E.F.**

- "*quod erat faciendum*" is the latin for "which was to be done" It appears in Latin translations of Euclid's works signifying that he had demonstrated what he had set out to demonstrated.

**Quadrangle**

- a four-sided [polygon](#); see [quadrilateral](#)

**Quadratic equation**

-  $Ax^2 + By + C = 0$

**Quadratic term of an equation**

- the term  $Ax^2$  in a quadratic equation

**Quadrilateral**

- a four-sided [polygon](#); see [rhombus](#), [parallelogram](#), [square](#), [rectangle](#), [trapezoid](#), [isosceles trapezoid](#), [kite](#)

**R**

- [rotation](#)

**r**

- [radius](#)

**Radii**

- plural form of radius

**Radius**

- the [segment](#) whose endpoints are any point on a [circle](#) or [sphere](#) and its [center](#); the length of that segment

**Rate**

- a ratio where the quantities are of different kinds; example: 60 *miles per hour*

**Ratio**

- a quotient of 2 numbers

**Ratio of similtude**

- the ratio of the length of an [image](#) to the length of the [preimage](#)

**Ray**

- a one-dimensional figure that consists of one endpoint A, one point B, all of the points on  $\overline{AB}$ , and all points for which B is between them and A; written  $\overrightarrow{AB}$

**Rectangle**

- a [quadrilateral](#) whose angles are all right angles

**Rectangular solid**

- the [union](#) of a [box](#) and its interior

**Reference angle**

- the [angle](#) of less than 360 degrees that corresponds to an angle of over 360 degrees; In order to get the reference angle, you must subtract 360 degrees from the given angle until there is less than 360 degrees left.

**Refine**

- to change a [conjecture](#) slightly so that it is true

**Reflecting line**

- see [line of reflection](#)

**Reflection image**

- For a point A not on the reflecting line, its reflection image is the point B where the reflecting line is the [perpendicular bisector](#) of  $\overline{AB}$ . For a point A on the reflecting line, its reflection image is itself.

**Reflection image of a figure**

- the set of all of the reflection images of points in the figure

**Reflection notation**

-  $r_m(ABC)$ , which stands for the reflection over line m of figure ABC

**Reflection-symmetric figure**

- a figure that shows [reflection symmetry](#)

**Reflection symmetry**

- a characteristic of a figure in which there is a reflection line where its reflection is itself

**Reflex polygon**

- a polygon for which 2 or more of its sides intersect each other

**Region**

- the [union](#) of a [figure](#) and its interior

**Regular polygon**

- a [convex polygon](#) whose [angles](#) and sides are all [congruent](#)

**Regular pyramid**

- a [pyramid](#) whose [base](#) is a [regular polygon](#) and whose [vertex](#) forms a segment with the center of the [polygon perpendicular](#) to its [plane](#)

**Resolution**

- the density of [pixels](#) in a picture

**Rhombus**

- a [parallelogram](#) with four [equilateral](#) sides

**Right angle**

- an angle whose measure is 90 degrees

**Right cone**

- a [cone](#) whose [axis](#) is [perpendicular](#) to the [plane](#) containing its [base](#)

**Right cylinder**

- a [cylinder](#) whose direction of [sliding](#) is [perpendicular](#) to the [plane](#) of the [base](#)

**Right prism**

- a [prism](#) whose direction of [sliding](#) is [perpendicular](#) to the [plane](#) of the [base](#)

**Right triangle**

- a [triangle](#) that has a 90 degree angle

**Rotation**

- the [composite](#) of two [reflections](#) over intersecting lines

**S.A.**

- [surface area](#)

**Scale factor**

- [size change](#) magnitude

**Scalene triangle**

- a [triangle](#) with no [equilateral](#) sides

**Secant to a circle**

- a line that intersects the [circle](#) in two points

**Sector**

- part of a [circle](#) containing its [center](#) and an [arc](#)

**Segment**

- aka [line segment](#); the set of points consisting of two distinct points and all inbetween them; written  $\overline{AB}$

**Semicircle**

- an [arc](#) whose [central angle](#) is a [right angle](#)

**Septagon**

- a seven-sided [polygon](#)

**Set**

- a collection of objects called elements

**Side of a polygon**

- a single [segment](#) from the [union](#) that forms a [polygon](#)

**Similar figures**

- two figures that have a similarity transformation mapping one onto the other; written  $F \sim G$

**Similarity transformation**

- a [transformation](#) that is the [composite](#) of [size changes](#) and/or [reflections](#)

**Size change**

- Let  $A$  be a point and  $k$  be a positive real number. For any point  $B$ , let  $T(B) = B'$  be the point on  $\overrightarrow{AB}$  with  $OP' = k \cdot OP$ . Then  $S$  is the size change with **center**  $A$  and **magnitude**  $k$ . See [transformation](#).

**Size change factor**

- size change magnitude

**Size transformation**

- see [size change](#)

**Skew lines**

- non-coplanar [lines](#) that don't intersect

**Slant height**

- the length of a [lateral edge](#) of a [conic solid](#)

**Slide**

- see [translation](#)

**Slope**

- the measure of the tilt of a line; rise over run (i.e., how much the line moves up for every movement to the right). The formula for slope is

$$\frac{y_2 - y_1}{x_2 - x_1}$$

**Small circle**

- the [circle](#) formed by the [intersection](#) of a [sphere](#) and a [plane](#) that doesn't contain the [center](#)

**Solid**

- the [union](#) of the [surface](#) and the region of [space](#) enclosed by a 3-D figure; examples: [conic solid](#), [cylindric solid](#), [rectangular solid](#)

**Solid geometry**

- the study of figures in three-dimensional space

**Space**

- the set of all possible points; made up of infinite planes

**Sphere**

- the set of points in space equidistant from a certain point

**Square**

- an [equilateral](#) and [equiangular quadrilateral](#)

**Straight angle**

- an [angle](#) whose measure is 180 degrees, forming a line with its sides

**Straightedge, unmarked**

- just how it sounds, an unmarked tool used to draw straight lines

**Subroutine**

- a previously known [algorithm](#) used in another algorithm

**Subset**

- a set that is part of a larger set

**Sufficient condition**

- a version of a [conditional](#) that tells you when you can use the term defined, where the term is in the [consequent](#); a condition that implies a preset conclusion; see [meaning](#)

**Supplementary angles**

- 2 angles whose measures, when added together, equal 180 degrees

**Surface**

- the boundary of a [3-D figure](#)

**Surface area**

- the total [area](#) of the surface of a [solid](#)

**Symmetry diagonal**

- the [diagonal](#) that [perpendicularly bisects](#) the other and is a symmetry line for the [kite](#)

**Symmetry line**

- the [line of reflection](#) in a [reflection-symmetric figure](#)

**Terminal side**

- the side that the measurement of an angle ends at

**Tessellate**

- the ability of a region to tessellate

**Tessellation**

- a covering of a plane with [congruent](#) copies of the same region with no holes or overlaps

**Tetragon**

- a four-sided [polygon](#); see [quadrilateral](#)

**Theorem**

- important mathematical statements which can be proven by [postulates](#), definitions, and/or previously proved theorems

**Three-dimensional**

- having length, width, and thickness (i.e., [space](#))

**3-D figure**

- a set of points in space; examples: [box](#), [cone](#), [cylinder](#), [parallelepiped](#), [prism](#), [pyramid](#), [regular pyramid](#), [right cone](#), [right cylinder](#), [right prism](#), [sphere](#).

**Tilt**

- the measure of an angle as compared to a horizontal line; what happens when you kick the pinball machine too hard; see [grade](#)

**Torus**

- a [3-D figure](#) formed by rolling a [rectangle](#) into a [cylinder](#) and bending the cylinder until its bases meet; a "doughnut"; see [net](#)

**Transformation**

- a correspondence between two sets of points such that each point in the [preimage](#) has a unique [image](#) and that each point in the image has exactly one preimage; see [reflection](#), [size change](#), [isometry](#), [composite](#)

**Transformation notation**

-  $\tau(P)$ , which stands for the transformation of  $P$ ; also  $s_k$  where the transformation  $s$  that maps  $(x, y)$  onto  $(kx, ky)$  and  $k$  is the magnitude of that transformation

**Translation**

- the [composite](#) of two [reflections](#) over [parallel](#) lines; aka [slide](#)

**Transversal**

- a line that intersects 2 others

**Transversible**

- a network in which all arcs can be traced without going over one more than once

**Trapezoid**

- a [quadrilateral](#) that has at least one pair of [parallel](#) sides; see [isosceles trapezoid](#)

**Triangle**

- a polygon with three sides; see [equilateral triangle](#), [isosceles triangle](#), [right triangle](#), [scalene triangle](#)

**Triangulate**

- to divide a polygon into triangles

**Tridecagon**

- a 13-sided [polygon](#)

**Trigon**

- a three-sided [polygon](#); see [triangle](#)

**Two-dimensional**

- having both width and length, but no thickness

**Undecagon**

- an eleven-sided [polygon](#)

**Union of two sets A and B**

- the set of elements in A, B, or both; written  $A \cup B$

**Unit cube**

- unit of measuring [volume](#)

**Universal statement**

- a conditional that uses the words 'all' or 'everything'

**Universe**

- in a Venn diagram, everything that is outside the sets

**Vanishing line**

- the horizon; in a [drawing](#) it is at the height of viewer's eye

**Vanishing point**

- the point in space where two parallel lines seem to meet

**Vertex**

- see [node](#)

**Vertex angle**

- the [angle](#) formed by the [equilateral](#) sides of an [isosceles triangle](#)

**Vertex of an angle**

- the common endpoint of the two rays

**Vertex of a conic solid**

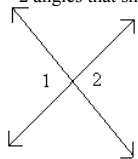
- the point that marks the thinnest part of a [conic solid](#)

**Vertex of a polygon**

- an endpoint of a [segment](#) in a [polygon](#)

**Vertical angles**

- 2 angles that share a common vertex and whose sides form 2 lines

**Vertical line**

- a line that goes straight up and down, and whose slope is defined as infinite or undefined

**View**

- a [drawing](#) of a side of an object

**Volume**

- the amount of [space](#) a [3-D object](#) can hold

**Wedge**

- see [sector](#)

**Zero angle**

- an [angle](#) whose measure is 0. In a zero angle, both the initial and terminal sides are the same.

**Zero-dimensional**

- having no dimension; a [point](#)

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- [Jaime III](#)

*Math - (math) noun. a term used to describe the various forms of torture applied to children in schools all around the world.*

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Geometry

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