Euclidean Geometry

theorem	a statement that has been proven based on previous theorems, postulates, or axioms
collinear	points that lie on the same line
deductive reasoning	the process of utilizing facts, properties, definitions, and theorems to form a logical argument
coplanar	contained within the same plane
postulate	a statement accepted without proof; also known as an axiom

Add

Euclidean geometry is comprised of figures and diagrams that can all be constructed using just a straightedge and compass.

Point, line, plane

Point	Line	Plane
No dimensions	One-dimensional set of infinite points	Two-dimensional set of all points
Location on coordinate plane designated by an ordered pair (x/y)	Has no beginning or an end	Flat or level surface
Identified with a single capital letter	Identified with a lowercase italicized letter or two capital letters representing two points on the line	Identified with a capital italicized letter

Defining terms

line segment	a part of a line that has two endpoints and a specific length
ray	part of a line that has one endpoint and extends indefinitely in one direction
circle	the set of all points in a plane that are a given distance away from a given point called the center
angle	a figure formed by two rays that share a common endpoint
parallel lines	lines that lie in the same plane and do not intersect
perpendicular lines	lines that intersect to form right, or 90-degree, angles

Measuring Length and Angles

midpoint	a point on a line segment that is equidistant from the two endpoints
protractor	tool used to measure an angle in degrees
bisect	to divide into two congruent parts
congruent segments	two line segments that have the same length
Undefined terms:	Point: Points are locations in space. Line: Lines are infinite in two different directions.
Defined terms:	Line segment: A line segment has two endpoints. Ray: Rays have one endpoint. Angle: An angle is formed by two rays with a common endpoint.
adjacent angles	two angles within the same plane that share a common side and vertex, but do not share any common interior points

Measuring Length and Angles (cont)

congruent angles	two angles that have the same measure
obtuse angle	an angle measuring greater than 90 degrees, but less than 180 degrees
straight angle	an angle whose measure is exactly 180 degrees
acute angle	an angle measuring between 0 and 90 degrees
right angle	an angle whose measure is exactly 90 degrees

Intro to proof

conjecture	a statement thought to be true but not yet proved true or false
deductive reasoning	the process of utilizing facts, properties, definitions, and theorems to form a logical argument
reflexive property	the property that states that for any real number x, $x = x$; or that a figure and its parts (e.g., sides, angles, triangles, etc.) are congruent to themselves
substitution property	the property stating that if two values are equal, then they are interchangeable in an equation; or if two figures are congruent, then they are interchangeable in a statement
symmetric property	the property that states that the left and right sides of an equation or congruence statement are interchangeable

Intro to proof (cont)

Proofs involve:	given information, in words or a diagram, a statement to be proven, an argument using deductive reasoning and justification of steps in a logical order. A conclusion

Linear Pairs and Vertical Angles

linear pair	2 adjacentangles whose noncommon sides are opposite rays
vertical angles	opposite angles formed by two intersecting lines

Complementary and Supplementary Angles

opposite rays	ays that are collinear and have the same endpoint but run infinitely in opposite directions
supplementary angles	two angles whose measures have a sum of 180 degrees
complementary angles	angles are two angles whose measures have a sum of 90 degrees

Example finding angle

Find the following angle measures.

$m\angle 1 = ?$

$m\angle 1 + 70° = 90°$

$m\angle 1 = 90° - 70$

$m\angle 1 = 20$