

Definitions you should Know:

- (1) Incidence axioms and distance axioms
- (2) Definition of Betweenness $A - B - C$
- (3) The Fano Plane
- (4) Unique Middle Theorem
- (5) Betweenness of Points Theorem
- (6) Segment $\overline{AB}$ and ray $\overrightarrow{AB}$.
- (7) Ruler Axiom
- (8) Midpoint
- (9) Angle measurement axioms for the angle between coterminal rays
- (10) Definition of betweenness for rays
- (11) Protractor Axiom
- (12) Separation Axiom
- (13) Halfplane whose edge is a given line ℓ
- (14) Special angles:
 - (a) right angle
 - (b) acute angle
 - (c) obtuse angle
 - (d) straight angle
- (15) SAS Axiom
- (16) Special triangles:
 - (a) isosceles triangle
 - (b) equilateral triangle
 - (c) scalene triangle
 - (d) right triangle
 - (e) legs of a right triangle
 - (f) hypotenuse of a right triangle
- (17) Special lines:
 - (a) perpendicular lines
 - (b) parallel lines
 - (c) vertical angles
 - (d) transversal
- (18) Parallel Postulate and Euclid's 5th Postulate
- (19) Quadrilaterals:
 - (a) parallelogram
 - (b) rectangle

- (c) square
- (d) rhombus
- (e) trapezoid
- (f) isosceles trapezoid
- (20) How to construct the circumscribed and inscribed circle of a regular polygon
- (21) radius of a regular polygon
- (22) apothem of a regular polygon
- (23) Area of a regular polygon
- (24) tangent line to a point on a circle
- (25) tangent line is perpendicular to radius

Proofs you should Know:

- (1) Midpoint Theorem
- (2) Angle Bisector Theorem
- (3) Why Taxicab Geometry fails SAS
- (4) Why ASS is not a triangle congruence criterion
- (5) Vertical Angle Theorem
- (6) The Perpendicular Line Theorem: Given a line ℓ and a point P , there is a line m through P that is perpendicular to ℓ
 - Case (i) P on ℓ
 - Case (ii) P is not on ℓ
- (7) Why the Parallel Postulate cannot be proved from the other axioms of geometry (using the Poincare model of hyperbolic geometry)
- (8) Spherical Model of Geometry and parallel lines
- (9) Hyperbolic Model of Geometry and parallel lines
- (10) The sum of the measures of the angles of a triangle is 180, using the Alternate Interior Angle Theorem
- (11) Pythagorean Theorem
 - Garfield proof in notes
 - Your favorite proof
- (12) $A = \pi r^2$ for circles
 - teeth proof
 - annulus proof
 - regular polygon proof