H.Geometry – Chapter 3 – Definition Sheet

Section 3.1	
Measurement Tools	
Construction Tools	
Sketch **Draw** **Construct**	
Constructing the Duplicate of a Segment	1.) Start with a given segment. 2.) 3.) 

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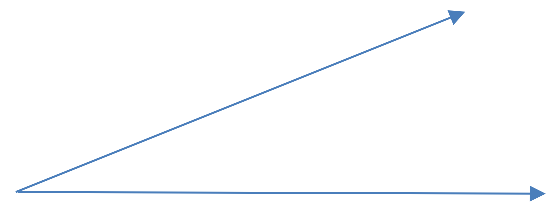
Constructing the Duplicate of an angle	1.) Start with a given angle. 2.) 3.) 
Constructing an equilateral triangle	

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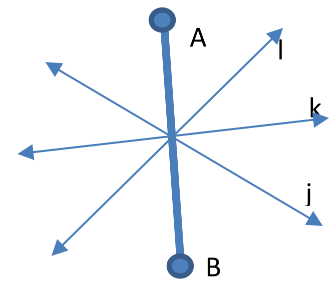
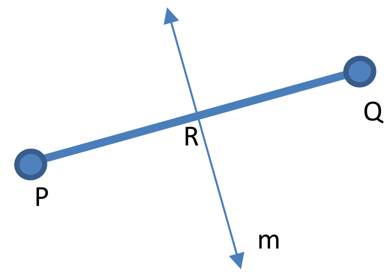
Section 3.2	
Segment Bisector • Definition	
Perpendicular Bisector • Definition	
Perpendicular Bisector Conjecture	• If a point is on the ______________________________________, then it is ______________________________ from the endpoints of the segment. Example:
Converse of the Perpendicular Bisector Conjecture	• If a point is equidistant from the endpoints of a segment, then it lies on the ____ of the segment.

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Perpendicular Bisector Construction	**Note: Knowing how to construct the perpendicular bisector of a segment means you can construct the ___________________ of a segment.**

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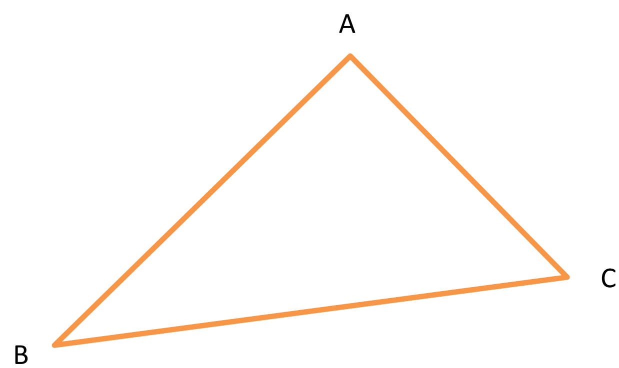
____________________ **of a triangle**	• The segment connecting a vertex of a triangle to the ____________________of the opposite side.
Construct the median $\overline{AM}$ 1.) 2.)	
____________________ **of a triangle**	• The segment connecting the _________________________ of two sides of a triangle How to construct it: 1.) 2.)

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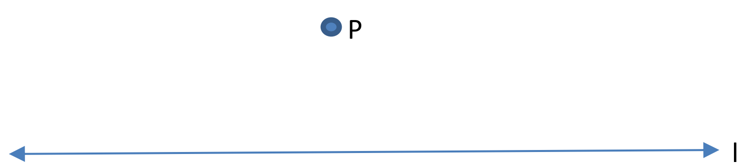
Section 3.3	
Shortest Distance Conjecture	The shortest distance from a point to a line is measured along the ___________________________________ from the point to the line.
Definition of ___________________ ___________________	The length of the __________________________ segment from the point to the line.
Altitude of a Triangle **VS.** **Height of a Triangle**	
Constructing a Perpendicular through a Point (P) Not on the Line Process:	

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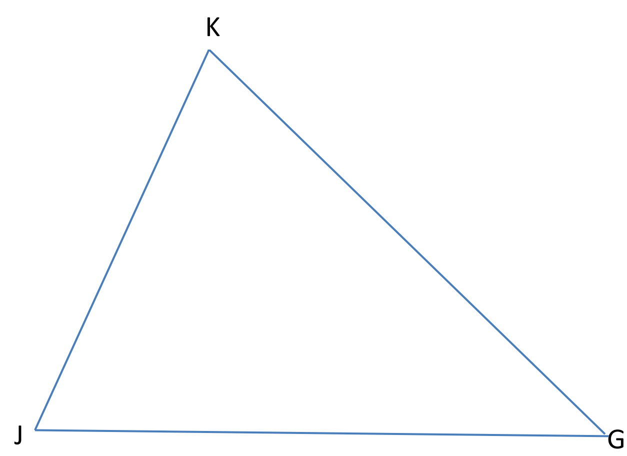
Constructing a Perpendicular through a Point (P) ON A LINE. Process:	
Constructing an Altitude of a Triangle. Process:	

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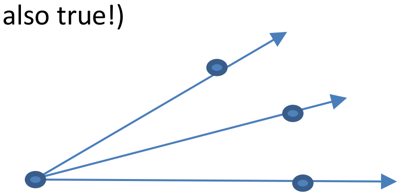
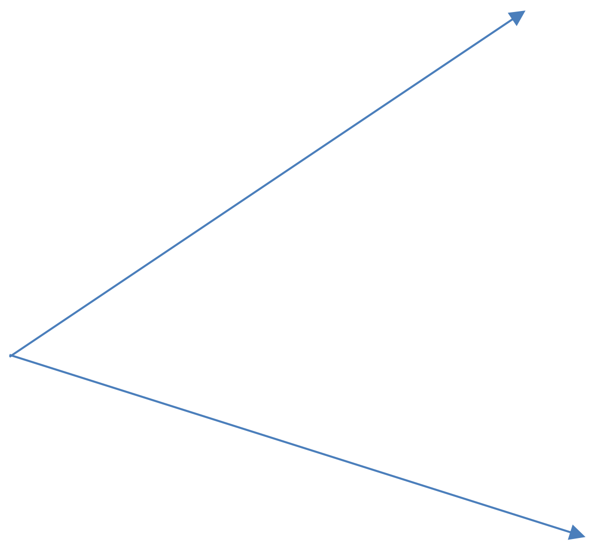
Section 3.4	
Angle Bisector Conjecture	If a point is on the bisector of an angle, then the point is ________________________ from the sides of the angle. (Note: the converse is also true!) 
Construct an Angle Bisector Process:	

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Equilateral Triangle Angle Conjecture	The measure of each angle of an equilateral triangle is ___________________.
Investigation	(a) Construct a 45° angle at P  (b) Construct a 60° angle at Q 

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UYAS 3: slopes/parallel and perpendicular lines	
Parallel Slope Conjecture	• In a coordinate plane, two distinct lines are __________________ if and only if their slopes are _________________.
Perpendicular Slope Conjecture	• In a coordinate plane, two non-vertical lines are __________________ if and only if their slopes are _____________________________.
Examples	**For the given lines, find the slope, and give the slopes of the parallel and perpendicular lines.**

Line	Slope	Slope of Parallel	Slope of Perpendicular
Line JK J(5,7) K(-2,10)			
Line LM L(-2,-6) M(2,2)			

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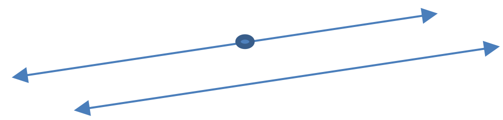
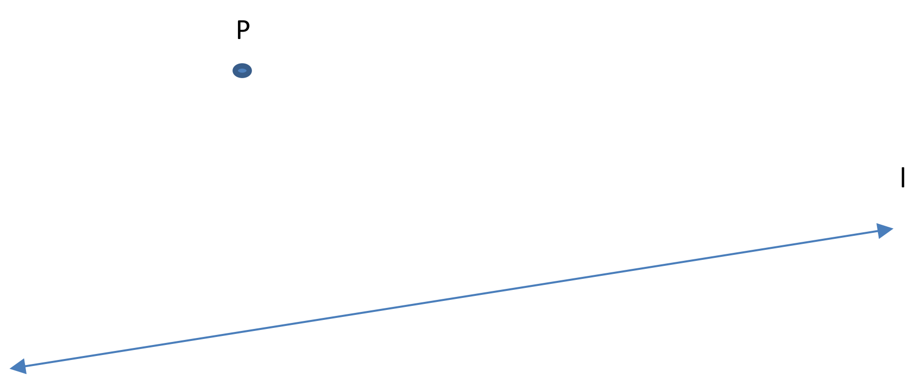
Section 3.5	
Parallel Lines	Coplanar lines that do not intersect (**Note:** This means that the lines are always the ________________________________ apart.)
Parallel Postulate (Euclid's 5th postulate)	Through a point not on a line, there is _____________________________ line through the point parallel to the line. 
Constructing parallel lines using the "Equidistant Method" Process:	Given: Line l and Point P NOT on l Construct: A line through P parallel to l 

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Two Perpendiculars Conjecture	In a plane, if two lines are perpendicular to the same line, then the lines are ____________.

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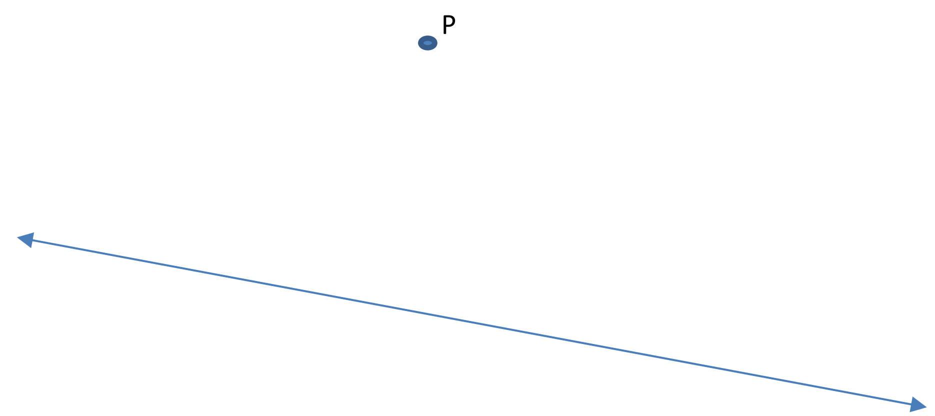
Constructing Parallel Lines using the “Two lines perpendicular to the same line” method Process:	
Constructing Parallel Lines using the “Rhombus” method	

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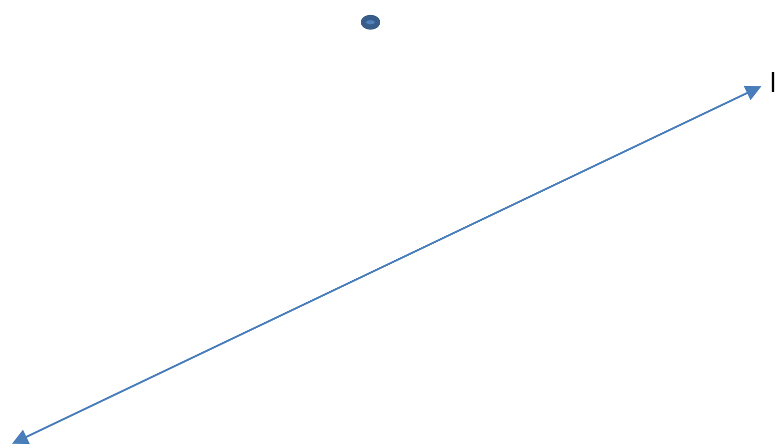
Process: (1) Choose point on l and call it *M*	
Constructing Parallel Lines using the "Alternate Interior Angles" method	

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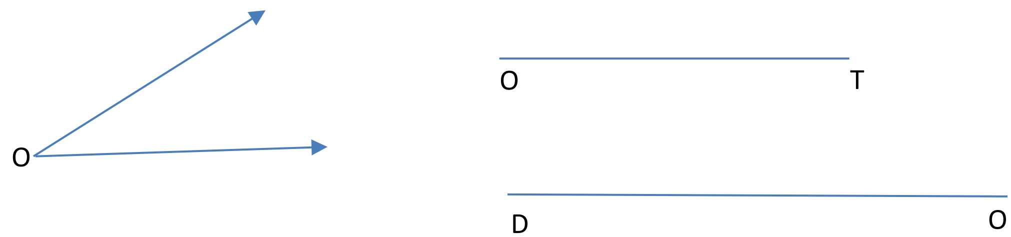
Section 3.6	
Determining a Triangle	When all triangles constructed with given measures (some combination of side lengths and angles measures) are congruent.
Example	Use the following measurements to construct ΔDOT 

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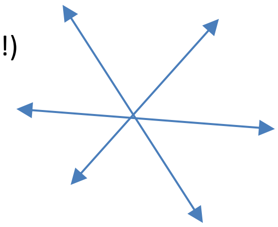
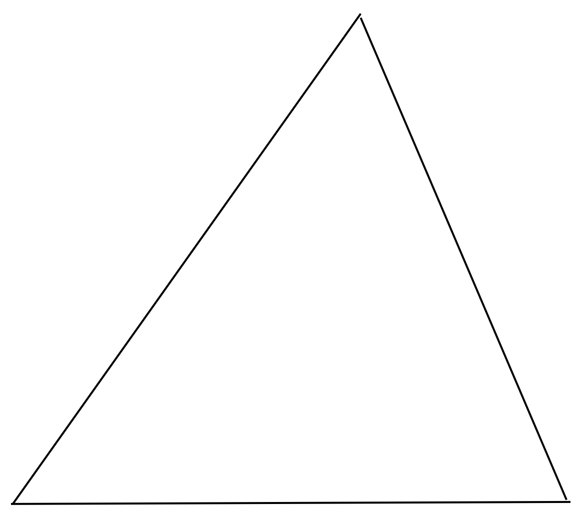
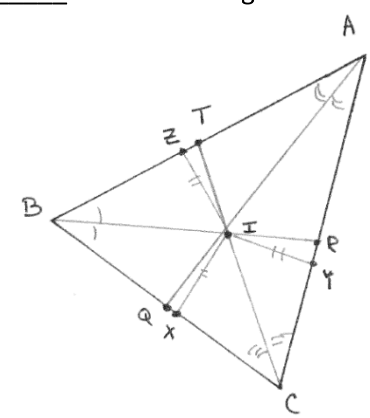
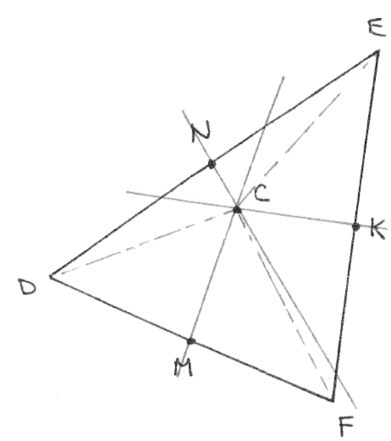
Section 3.8	
Definition of **__________________lines**	Lines (or segments or rays) that _________________________ in a single point. (Two lines are ALWAYS concurrent, but 3 lines will not always be!) 
Angle Bisector Concurrency Conjecture	The three angle bisectors of a triangle are ___________________________. 
________________ of a triangle	The point of concurrency of the _______________________ of a triangle

H.Geometry – Chapter 3 – Definition Sheet

_______________________ Concurrency Conjecture	The three ______________________________ of a triangle are concurrent.
_____________________ of a triangle	The point of concurrency of the _______________________________ of a triangle.
_______________________ Concurrency Conjecture	The three ______________________________ of a triangle are concurrent.
_____________________ of a triangle	The point of concurrency of the _______________________________ of a triangle.
____________________ Conjecture	The _________________ of a triangle is _____________________ from the triangles 3 sides. (recall: angle bisector conjecture in lesson 3.4) **<u>COROLLARY:</u>** The *incenter* is the ________________ of the triangles inscribed circle (touches each side in exactly one point.) 
____________________ Conjecture	The _________________ of a triangle is ___________________ from the triangles 3 vertices (recall: perpendicular bisector conjecture in lesson 3.2) **<u>COROLLARY:</u>** The *circumcenter* is the ________________ of the triangles circumscribed circle (passes through each vertex of the triangle.) 

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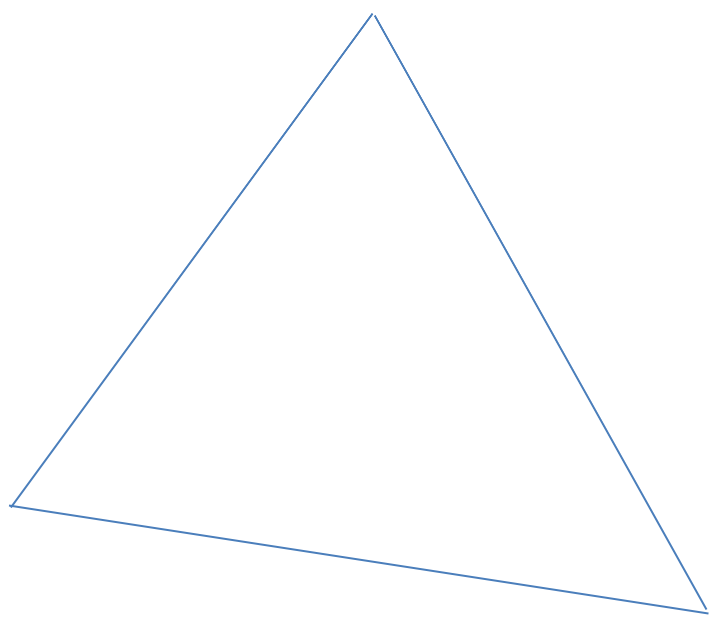
Section 3.9

Name	Concurrency of:	Special Properties:
Incenter		
Circumcenter		
Orthocenter		
	Medians	

Investigation	
Investigation **Are Medians Concurrent???**	

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Median Concurrencry Conjecture	The three ___________________________ of a triangle are __________________.
___________________ of a triangle	The point of concurrency of the ____________________________ of a triangle.
__________________ Conjecture	The ______________________ of a triangle divides each ___________________ into two parts, so that the distance from the centroid to the vertex is ___________________ the distance to the midpoint. IN OTHER WORDS: (1) The distance from the centroid to the vertex is ________ of the medians length. (2) The distance from the centroid to the midpoint is ____________ of the medians length.
Section 3.8 (Exploration)	
________________________ ________________________	• The "balancing point" of a figure • In physics, it's the imaginary point where an object's total weight is concentrated. • Questions: Where is the center of gravity of a triangle? Where is a human's center of gravity?
Center of Gravity Conjecture	The __________________ of a triangle is the center of gravity of the triangular region
________________________	A special line that contains 3 out of 4 points of concurrency.
________________________ conjecture	The _________________, the _________________, and the _________________________ are the three points of concurrency that always lie on the Euler Line.

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____________________	Segment on Euler Line created by the three points of concurrency.
____________________ **conjecture**	The ______________________ divides the Euler segment into two parts, so that the smaller part is ____ the longer part. IN OTHER WORDS: The longer part is twice as big as the smaller part.

Points of Concurrency in Triangles

Point Name	Concurrency of:	Special Properties	On Euler Line?
Incenter			
Circumcenter			
Orthocenter			
Centroid			