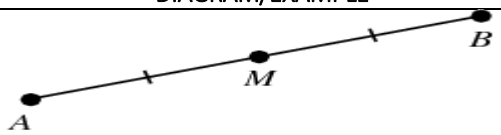
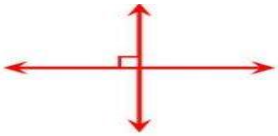
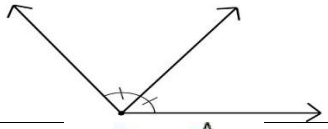
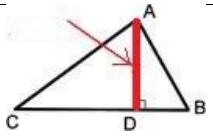
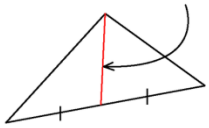
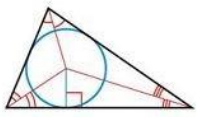
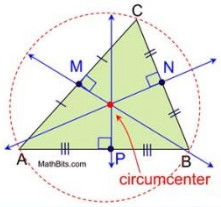
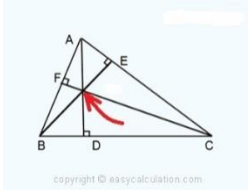
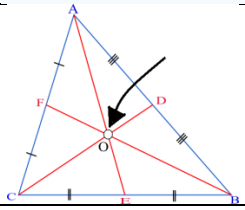
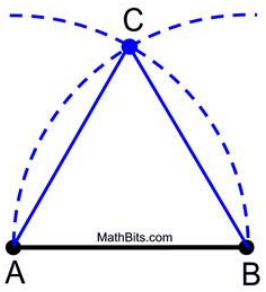
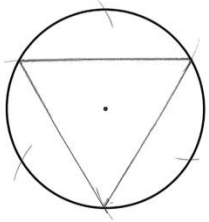
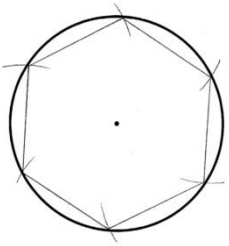
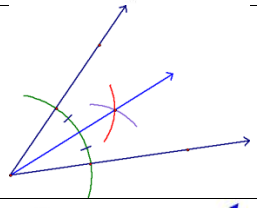
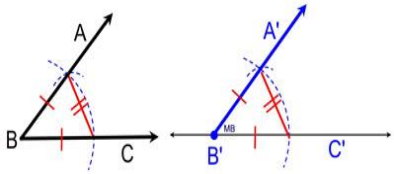
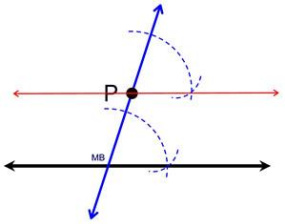
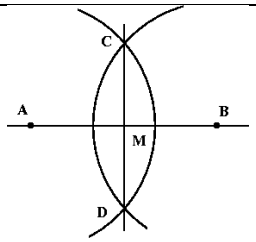
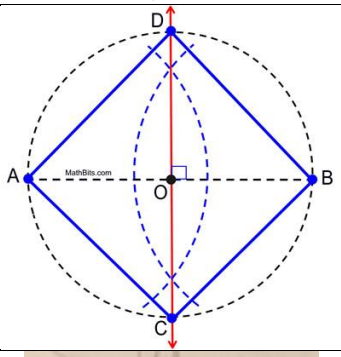
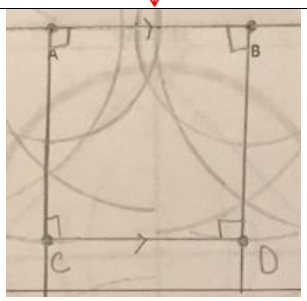
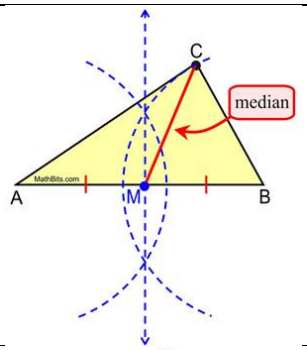
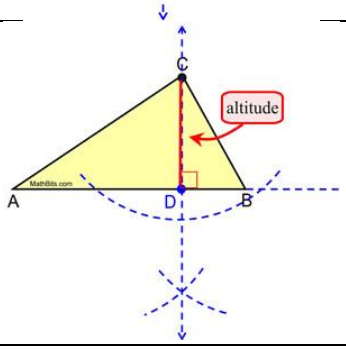
UNIT 1A STUDY GUIDE – CONSTRUCTIONS

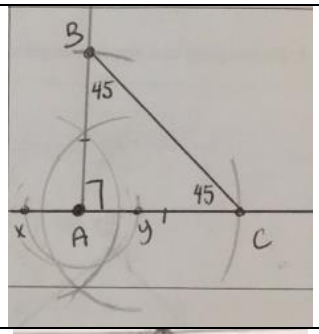
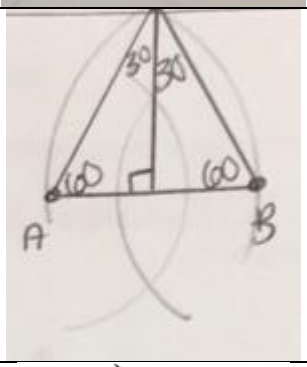
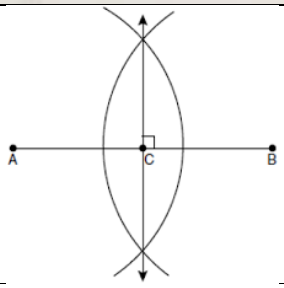
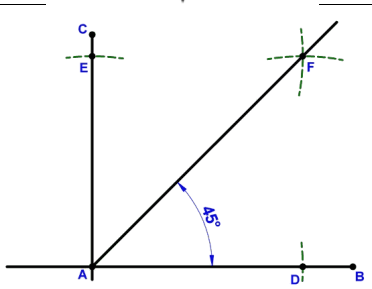
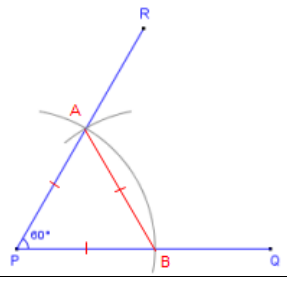
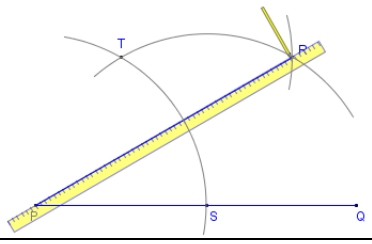
TOPIC #1: VOCABULARY

TERM	DIAGRAM/EXAMPLE	STATEMENT
Midpoint		The **POINT** that divides a line segment in half.
Parallel		Two lines that never intersect.
Perpendicular Bisector		A line that divides a line segment in two and creates **90 degree angles**.
Angle Bisector		A ray that divides an angle in **half**.
Altitude		A **perpendicular** line that stems from a vertex of a triangle to the opposite side.
Median		A line that connects the **midpoint** of a side to the opposite vertex.
Incenter		The point of concurrency between the three **angle bisectors**. Creates an **inscribed circle**.
Circumcenter		The point of concurrency between the three **perpendicular bisectors**. Creates a **circumscribed circle**.
Orthocenter		The point of concurrency between the three **altitudes**.
Centroid		The point of concurrency between the three **medians**. Creates a **2:1 relationship**.

TOPIC #2: CONSTRUCTIONS

WORD	STEPS	DIAGRAM
EQUILATERAL TRIANGLE	1. Place your compass point on *A* and measure the distance to point *B*. Swing an arc of this size above (or below) the segment. 2. Without changing the span on the compass, place the compass point on *B* and swing the same arc, intersecting with the first arc. 3. Label the point of intersection as the third vertex of the equilateral triangle.	
INSCRIBED EQUILATERAL TRIANGLE	1. Measure the length of the radius in your compass 2. Make arcs around the circle the length of the radius 3. Connect every other arc	
INSCRIBED HEXAGON	1. Measure the length of the radius in your compass 2. Make arcs around the circle the length of the radius 3. Connect every arc	
ANGLE BISECTOR	1. Draw an arc that hits both rays of the angle 2. From the two points of intersection, make the X 3. Connect the vertex through the X	
COPY AN ANGLE	1. From B, draw an arc that hits both rays of the angle 2. Draw the same arc from your new vertex (B') 3. Measure the distance between the two points of intersection 4. With that width, make an x on your new angle (B')	
PARALLEL LINES	Draw a transversal line from point P to go through the given line From the angle where the transversal intersects the line, draw an arc that will hit both rays Draw that same arc on point P Measure the distance between the two points of intersection on the angle formed by the original line. Make the X on the intersection from the arc that stems from P	 PARALLEL LINES FORM **CORRESPONDING ANGLES!**

PERPENDICULAR LINES	1. From one end point, extend your compass a little more than half way and make an arc 2. From the opposite endpoint, repeat the process 3. Connect the line through the two points of intersection	 WHEN IN DOUBT, DRAW THE TROUT!
INSCRIBED SQUARE	1. Draw a diameter AB 2. Make a perpendicular bisector on that diameter AB 3. Where the perpendicular bisector intersects the circle, label it C and D. 4. Connect A, B, C and D.	
RECTANGLE	1. Construct a perpendicular bisector through A (use semi-circle first) 2. Construct a perpendicular bisector through B (use semi-circle first) 3. Pick a width for your compass, put an arc on each perpendicular bisector stemming from A and B, label the points of intersection C and D. 4. Connect C and D	
MEDIAN	1. Construct a midpoint on one side using a perpendicular bisector 2. Connect the midpoint to the opposite vertex	
ALTITUDE	1. Extend the opposite side form the vertex you are making your altitude from. 2. Draw a semi-circle from the vertex which your altitude will touch 3. From those two points of intersection, make a perpendicular bisector (It should pass through the vertex)	

45-45-90 TRIANGLE	1. Construct a 90 degree angle by making a perpendicular bisector 2. Measure two congruent side lengths (B and C) from vertex A 3. Connect points of intersection	
30-60-90 TRIANGLE	1. Construct an equilateral triangle 2. Construct a perpendicular bisector	
90 DEGREE ANGLE	PERPENDICULAR BISECTOR!	
45 DEGREE ANGLE	1. Perpendicular bisector 2. Angle Bisector	
60 DEGREE ANGLE	EQUILATERAL TRIANGLE!	
30 DEGREE ANGLE	1. Equilateral triangle 2. Angle bisector