Name (print first and last) _____ **Per**_____ **Date:** 9/16 due 9/17

#1 Equilateral triangles **Unit 2 Geometry Regents 2013-2014 Ms. Lomac**

SLO: I can construct equilateral triangles and describe the steps for the construction.

(1) Draw: a) A is the midpoint of $\overline{BC}$ b) $\overleftrightarrow{WB}$ bisects $\overline{TV}$ at H

(2) Words that we will use today are listed below. Non-bolded words should be in your notes already. Bold words will be added to your notes today. If you are absent for notes, several Geometry glossary links are on Ms. Lomac's website that you can use to define, draw examples, name & write notation, and draw non-examples.

location	distance (length)	point	line segment	endpoint
congruent	compass	construction	equilateral	equidistant

(3) Joe and Marty are in the park playing catch. Tony joins them, and the boys want to stand so that the distance between any two of them is the same. Where do they stand?

How do they figure this out precisely? What tool or tools could they use?

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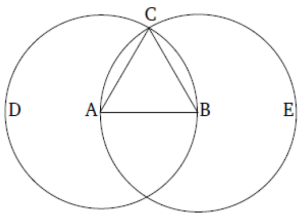
(4) Use a compass and straightedge to construct an equilateral triangle. (Like the illustration.) Use a side length of your choosing.



(5) Why does this construction guarantee an equilateral triangle?

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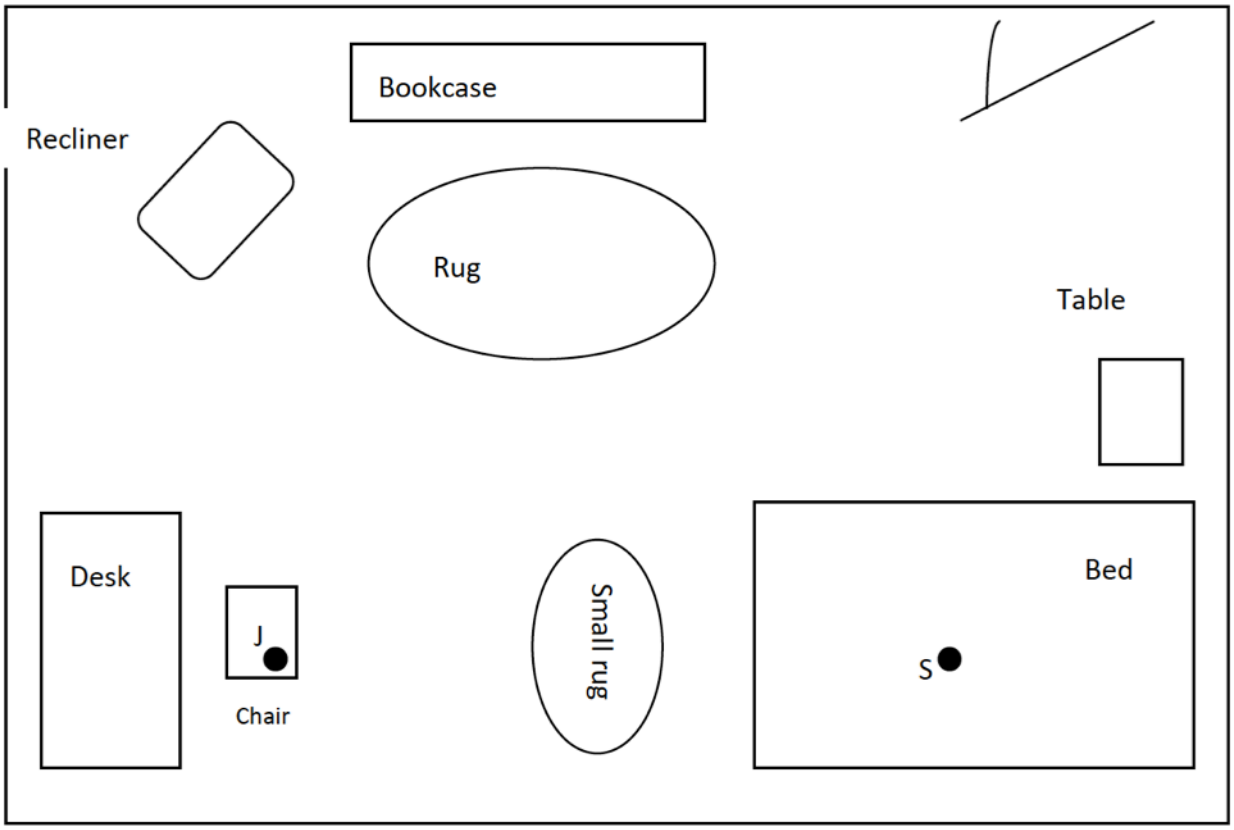
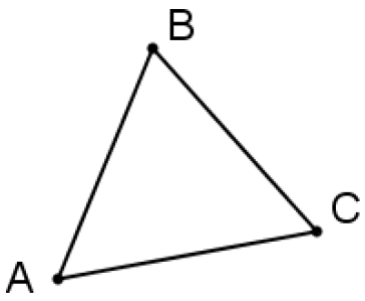
(6) Margie has three cats. She has heard that cats in a room position themselves at equal distances from one another and wants to test that theory. Margie notices that Simon, her tabby cat, is in the center of her bed (at **S**), while JoJo, her Siamese, is lying on her desk chair (at **J**). If the theory is true, where will she find Mack, her calico cat? Use the scale drawing of Margie's room shown below, together with (**only**) a compass and straightedge. Place an **M** where Mack will be if the theory is true.

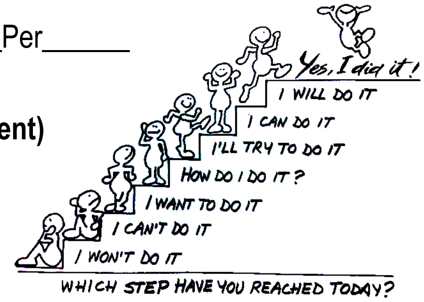


(7) $\triangle ABC$ is shown below. Is it an equilateral triangle? Justify your response.



Exit Ticket Unit 2 Activity#1 Name____Per______

Write clear step by step directions for how to construct an equilateral triangle.
(WORDBANK: equilateral, compass, distance, point, pencil, intersect, arc, line segment)



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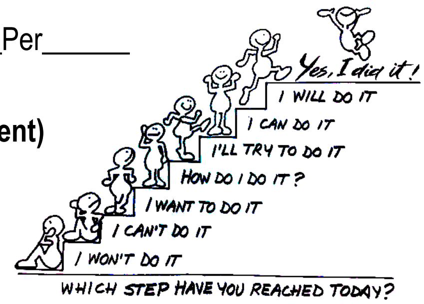

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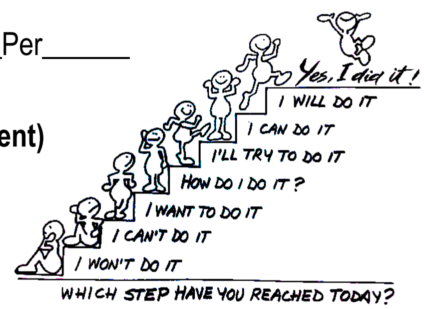

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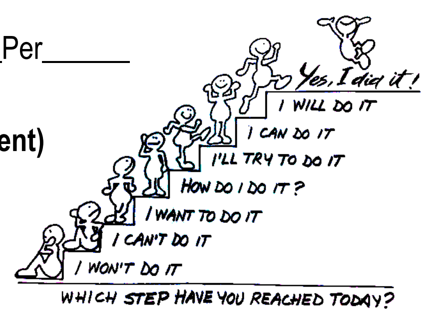

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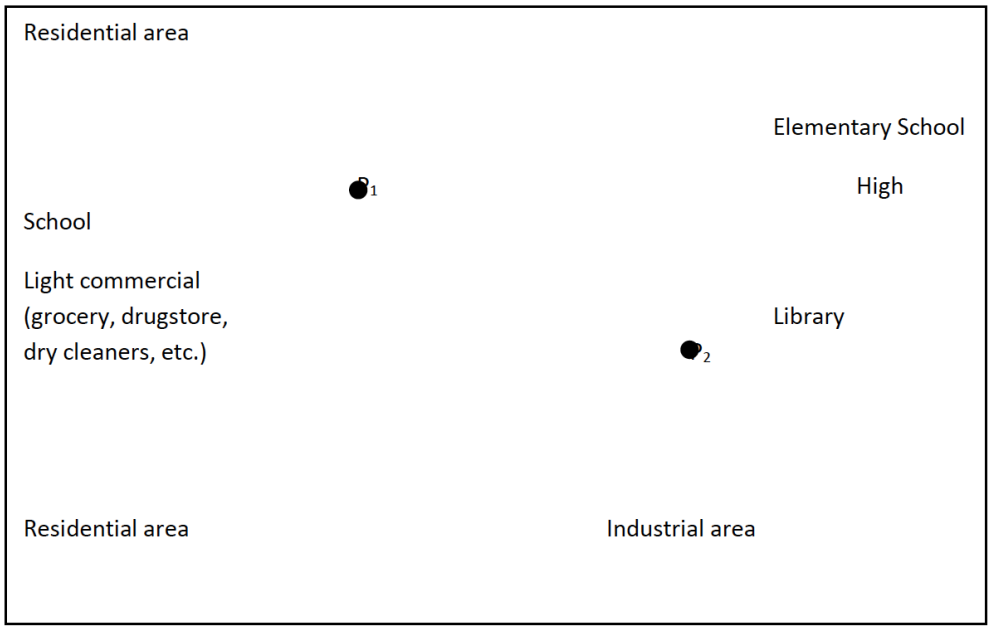
#1 Constructing Equilateral triangles HW **Unit 2 Geometry Regents 2013-2014 Ms. Lomac**

(1) Cedar City boasts two city parks and is in the process of designing a third. The planning committee would like all three parks to be equidistant from one another to better serve the community. A sketch of the city appears below, with the centers of the existing parks labeled as P_1 and P_2. Identify two possible locations for the third park and label them as P_{3a} and P_{3b} on the map. Clearly and precisely list the mathematical steps used to determine each of the two potential locations.

↧ *STEPS* ↧



(2) Why are *circles* so important to these constructions? Write out a concise explanation of the importance of circles in creating equilateral triangles. Why did Euclid use *circles* to create his equilateral triangles in Proposition 1? How does construction of a circle ensure that all relevant segments will be of equal length?

(3) Using the skills you have practiced, construct **three** equilateral triangles, where the first and second triangles share a common side, and the second and third triangles share a common side. Clearly and precisely list the steps needed to accomplish this construction.