Name (print first and last) _____ **Per**_____ **Date:** 9/19 due 9/20

#4 Constructing Perpendicular Bisectors **Unit 2 Geometry Regents 2013-2014 Ms. Lomac**

SLO: I can construct perpendicular bisectors.

(1) 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
reflection	bisect	perpendicular	**locus**	

(2) Use 4 different colors for the constructions below, 1 for each radius measure. Shade the boxes under the word "color" with the pencil/marker you use for that part of the construction.

Color

a) With a regular pencil, connect the 2 points below to make $\overline{AB}$. ☐

b) Measure the first segment at right with your compass and shade the color box. ☐

c) Construct circle A (the center is A) and circle B with the radius you measured. ☐

d) With a dot, mark the point(s) where the two circles intersect. ☐

e) Repeat steps a-d for the other 3 radius lengths.
(Remember to use a different color for each radius.)

A B

(3) Label the points 1,2,3,4,5,6,7 and 8 from top to bottom. Is point 1 the same distance from A as it is from B? _____
Is point 2 the same distance from A as it is from B? What about the other points, are they the same distance from A and B?

(4) Connect all of the points 1 through 8. What shape did you make when you connected them?

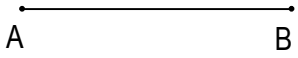
(5) You have just constructed the _____ _____ for line segment AB. This is also the _____, set of points, equidistant from points A and B.

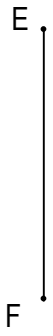
(6) The smallest number of circles you must draw to construct the perpendicular bisector is _____ because _____

_____

_____

(7) Construct the perpendicular bisector for each segment below. Label the intersection of the arcs W and X for the first perpendicular bisector and the Y and Z for the second one.





(8) Connect W to A and W to B. What type of triangle is AWB? _____ Is W equidistant from points A and B? _____ How do you know?_____

(9) Construct a line perpendicular to line *l* that passes through point A.

THINK: (a) Will point A be on the perpendicular line that you are constructing? _____ because _____

_____

(b) Are the points on a perpendicular bisector of a segment equidistant from the endpoints of the segment? _____

(c) Work backwards to construct 2 points on the line that are equidistant from point A. Label the points C and D.

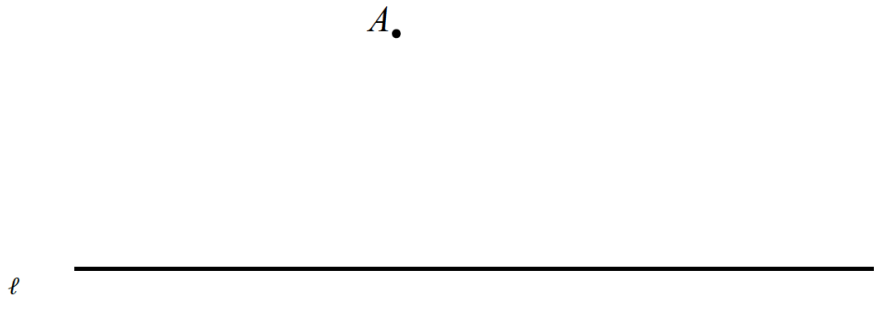
(d) Make two more arcs to construct the perpendicular bisector of $\overline{CD}$.

(e) Does the perpendicular bisector of $\overline{CD}$ also bisect the line? _____ because_____

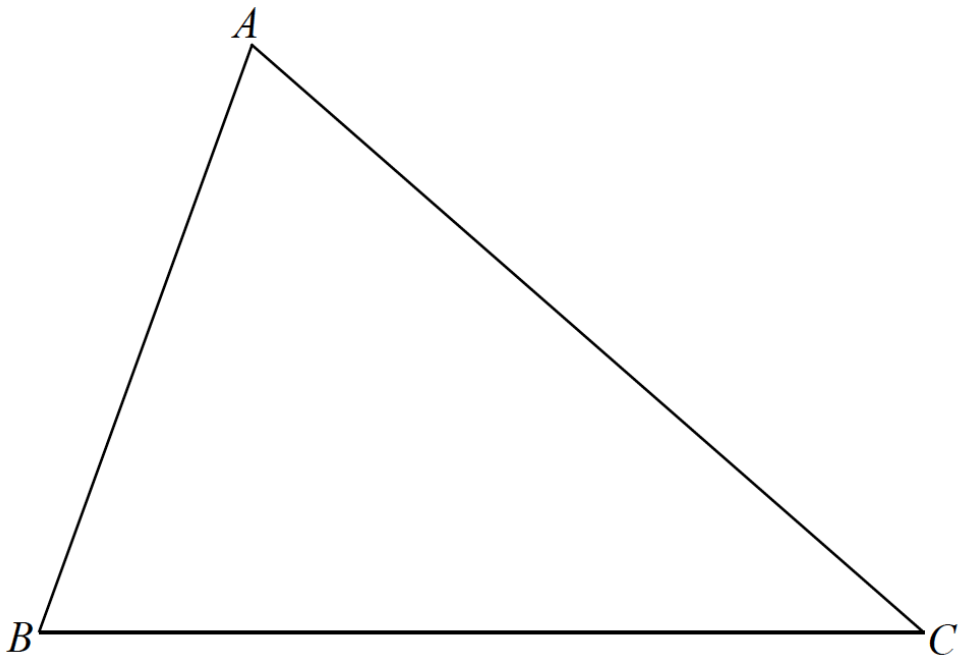
_____

(f) Is the perpendicular bisector of the segment also perpendicular to the line? _____ because _____

_____

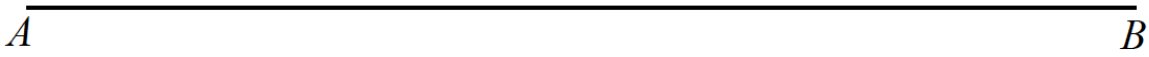


(10) Construct the perpendicular bisector of $\overline{AB}$, $\overline{BC}$, and $\overline{CA}$ on the triangle below. After you have constructed all 3 bisectors, describe what you notice about them. (If you want to reduce confusion, use a different color for each perpendicular bisector.)



(11) Divide $\overline{AB}$ into 4 congruent segments.

(Hint: construct the perpendicular bisector of $\overline{AB}$ and then construct 2 more perpendicular bisectors.)



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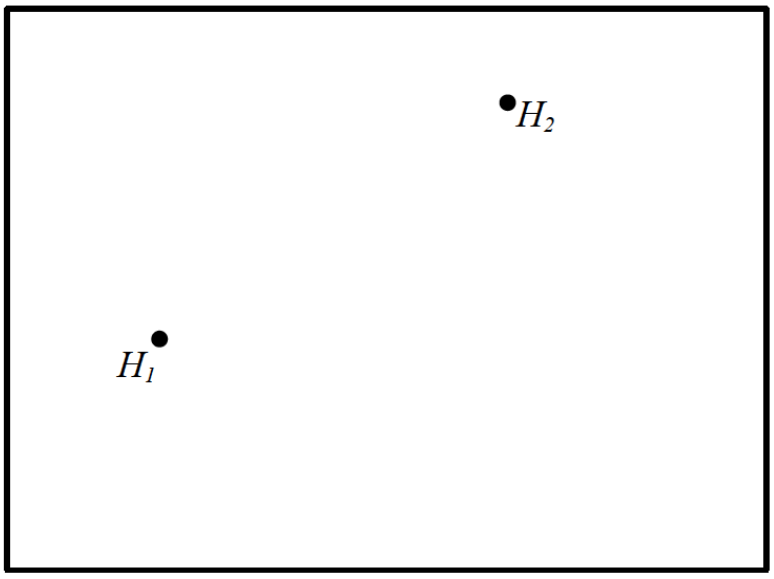
#4 Constructing Perpendicular Bisectors HW **Unit 2 Geometry Regents 2013-2014 Ms. Lomac**

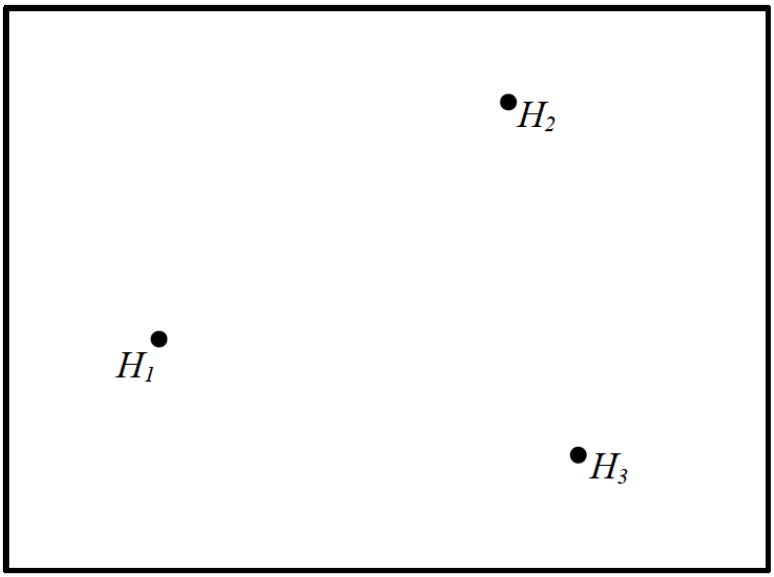
Two homes are built on a plot of land. Both homeowners have dogs, and are interested in putting up as much fencing as possible between their homes on the land, but in a way that keeps the fence equidistant from each home. Use your construction tools to determine where the fence should go on the plot of land.

HINT: Should the fence CONNECT the houses or SEPARATE the houses?



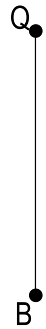
How will the fencing alter with the addition of a third home?

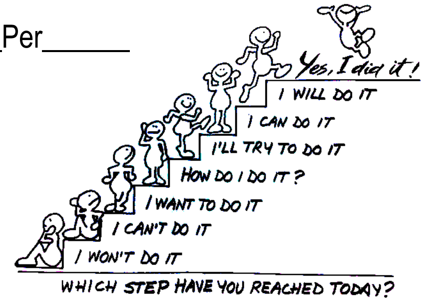
CONSTRUCT the fences to SHOW how the fencing will change. (You may want to use more than one color.)



Exit Ticket Unit 2 Activity#4 Name______________________________________ Per______

Construct the perpendicular bisector of $\overline{QB}$.





Exit Ticket Unit 2 Activity#4 Name______________________________________ Per______

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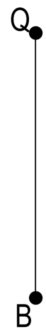

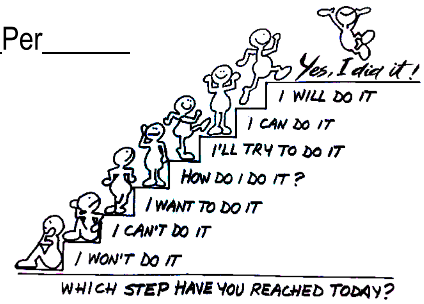

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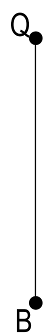

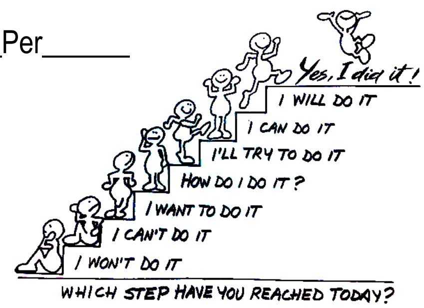

Exit Ticket Unit 2 Activity#4 Name______________________________________ Per______

Construct the perpendicular bisector of $\overline{QB}$.