☐ **DO NOW – Geometry Regents Lomac 2014-2015** **Date** 9/23 **due** 9/24 **Constructing Perpendicular Bisectors** **1.5**

(1) Name, Group Number, Lesson Number, Date

(2) Sketch and label
(a) △QRS
(b) ∠JKL
(c) $\overline{GH}$ with midpoint M

(3) Put the DO NOW/EXIT TICKET packet away.

Name _____ **Per**_____

SLO: I can describe what a perpendicular bisector is, construct one, and can explain how the construction makes the perpendicular bisector.

☐ (1) step a pages, scissors cup

Notes:

☐ (a) Obtain "1 Construction Notes Page 3 & 4", a descriptions page, scissors, and tape or glue

☐ (b) Cut, arrange, check, and then glue or tape down the descriptions

☐ (2) compass highligh-ters

Constructing Perpendicular Bisectors:

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.

☐ (a) With a regular pencil, connect the 2 points below to make $\overline{AB}$.
☐ (b) Highlight (pink) and measure the first segment below with your compass
☐ (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 highlight each radius with a different color)

A B

☐ (2) compass highlighters

Constructing Perpendicular Bisectors continued:

☐ (f) Label the points Q, R, S, T, U, V, W and X from top to bottom. Is point Q the same distance from A as it is from B? _____because_____.

☐ (g) Is point 2 the same distance from A as it is from B? _____ because _____

_____

☐ (h) What about the other points, are they the same distance from A and B?_____ because_____

_____

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

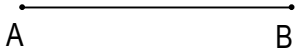
☐ (j) You have just constructed the _____ _____ for line segment AB. This is also the _____, set of points, equidistant from points A and B.

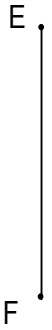
☐ (k) The smallest number of circles you must draw to construct the perpendicular bisector is _____ because

_____

☐ (3) compass highlighters

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.





Connect W to A and W to B. Is W equidistant from points A and B? _____ How do you know?_____What type of triangle is △AWB? _____

Is X equidistant from points A and B? _____ How do you know?_____

_____What type of triangle is △AXB? _____

☐ (4) compass highlighters

Constructing Perpendicular Bisectors continued:

Construct a line perpendicular to line ℓ that passes through point A. (see diagram below)

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) How can you use your compass to construct 2 points on the line that are equidistant from point A? _____ Do this and label the points C and D.

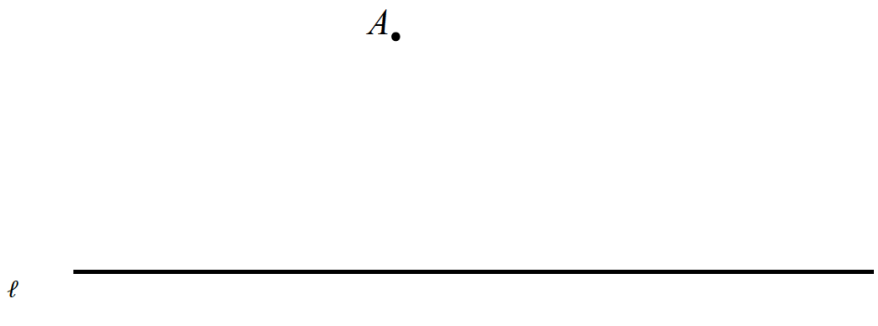
(d) Make two more circles/arcs centered at _____ and _____ to construct the perpendicular bisector of $\overline{CD}$.

(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 _____

_____



☐ (5) compass highlighters

Constructing Perpendicular Bisectors continued:

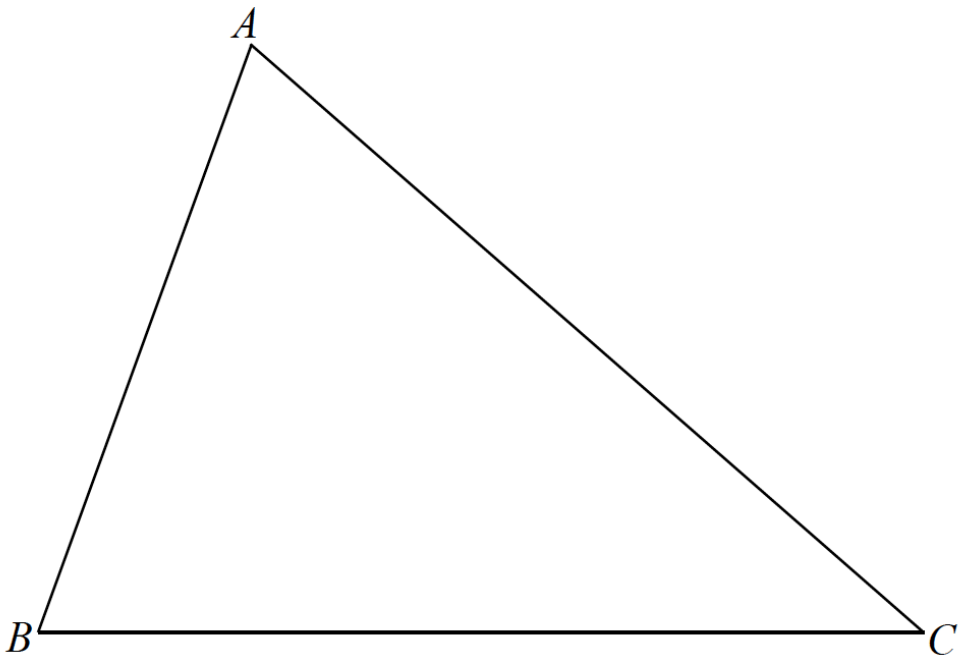
Construct the perpendicular bisector of $\overline{AB}$, $\overline{BC}$, and $\overline{CA}$ on the triangle below. After you have constructed all 3 bisectors, describe what you notice about them. (If you want to reduce confusion, use a different color for each perpendicular bisector.)

_____

_____

_____

_____



☐ (6) compass highlighters

Constructing Perpendicular Bisectors continued:

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

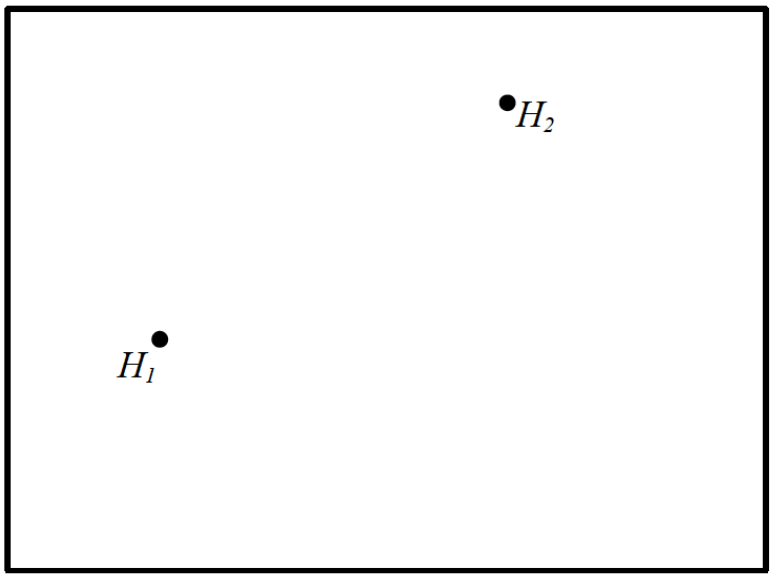
(Hint: construct the perpendicular bisector of $\overline{AB}$ and then construct 2 more perpendicular bisectors.)

☐ (7)
compass
highlighter
s

Constructing Perpendicular Bisectors continued:

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.)