☐ **DO NOW – Geometry Regents Lomac 2014-2015** **Date** 9/18 **due** 9/19 **Bisecting Angles** | **1.3**

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

(2) Sketch
(a) a bisected segment
(b) a bisected angle

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

Name _____ **Per**_____

SLO: I can bisect an angle by folding paper or using a compass and straightedge.

☐ (1) **Folding Angle Bisectors:**

angle diagrams

☐ Use the angles on the paper strip of angles to complete each item below.

☐ **Part A:** (1) Fold ∠A so that the sides of the angles meet exactly. (they should be touching)

THINK: If one ray is drawn shorter than another, can you still bisect the angle by folding the rays so they meet? Hmmmmmm……..

(2) Crease the paper on this fold (the crease should go through the vertex, point A).
(3) Mark point W on the crease you made in the interior of the angle
(4) Use a straightedge and pencil to draw ray AW on the crease. Remember rays have an arrow.
(5) Mark the two adjacent angles in the diagram with congruence marks to show that they are congruent.
(6) Repeat steps 1 through 5 for ∠B (label the new ray BX),
∠C (label the new ray CY),
∠D (label the new ray DZ)

☐ **Part B:** You bisected each angle below. That means that each angle was divided into _____ _____ _____. Write the pair of angles that are the same for each diagram.

∠A: _____≅_____ ∠B: _____≅_____ ∠C: _____≅_____ ∠D: _____≅_____

☐ **Part C:** How do you know that the angles you listed above are congruent?

_____

_____

_____

☐ (2) **Constructing Angle Bisectors:**

compass highlighters

Use a compass instead of folding to verify that you have drawn the ray that bisects ∠EAF. Put a check mark in each box as you complete each step.

☐ On the diagram with ∠A, choose a location on $\overrightarrow{AE}$, draw a point and label it P.

☐ Point P MUST meet up with a point on $\overrightarrow{AF}$ (we'll call it point U) when you fold the angle. Use your compass to measure the distance from A to ___ and construct a circle centered at ____ that intersects $\overrightarrow{AF}$ (pink). The intersection of the circle and $\overrightarrow{AF}$ shows us the location for point U on $\overrightarrow{AF}$

☐ So far, we know that $\overline{AP}$ is the same length as _____.

☐ (2) continued

☐ The bisector of the angle follows the crease you made which goes through ____ _____ of the angle. To bisect the angle with a compass, we need to construct a point inside the angle that is (circle one)

closer to P closer to U the same distance from P and U

☐ To construct this point, set a distance on your compass (it doesn't matter what distance) and construct a _____ centered at point _____ (blue) and construct a _____ centered at point ____ (green) using the same radius measure for both circles. The point where the two circles _____ shows us a point that is equidistant from point _____ and point _____ because circle _____ and circle _____ have the same _____. Label this point M. Since point M is equidistant from the sides of the angle, it must be on the _____ of the angle which we creased and labeled ray _____ .

☐ When you constructed point M, was it on the crease you folded? ____ Describe briefly why it did or did not fall on the crease _____

☐ (3) compass highlighters

Constructing Angle Bisectors:

Use your compass and the process you followed in (2) to verify the other three angle bisectors with your compass and construction.

☐ (3)

Exit Ticket

The steps used to bisect an angle are numbered and shown in the diagram. Complete the steps below.

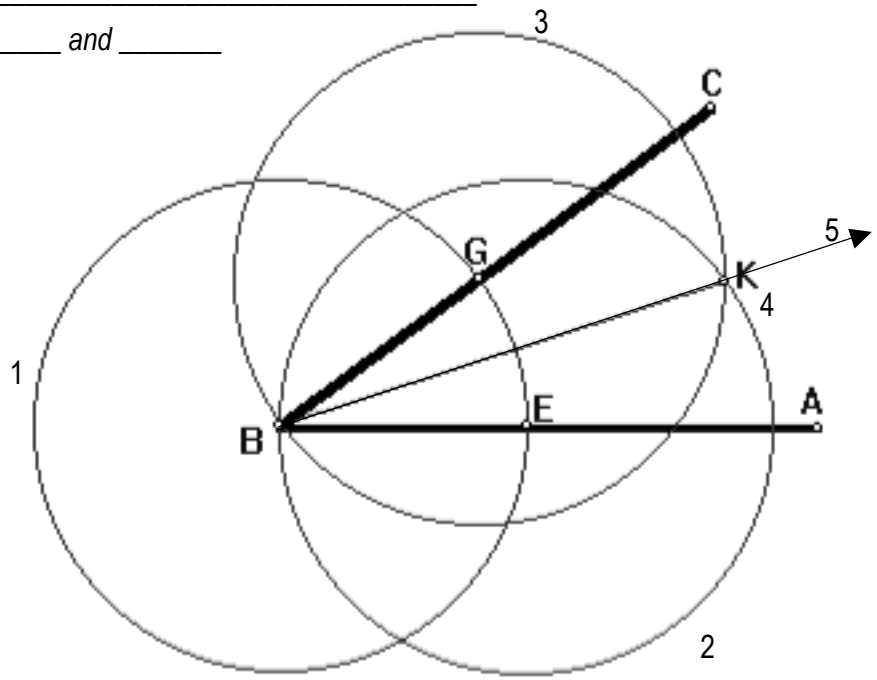
Step 1: Construct _____ to show all the points_____ and mark and label _____ and _____

Step 2: Construct _____ to show all the points_____

Step 3: Construct _____ to show all the points_____

Step 4: Mark the point where _____

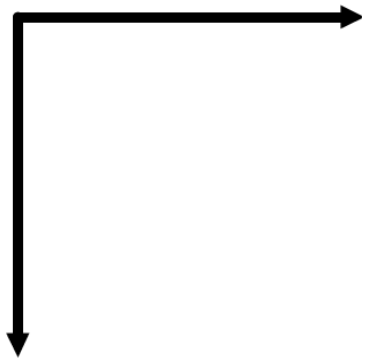
Step 5: Draw a ray by connecting _____ and _____

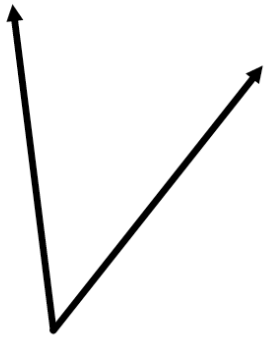


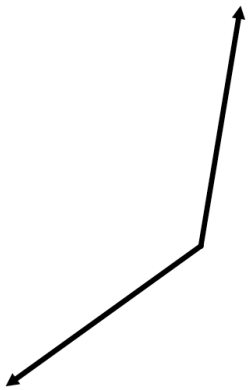
☐ (4) compass highlighters

HOMEWORK:

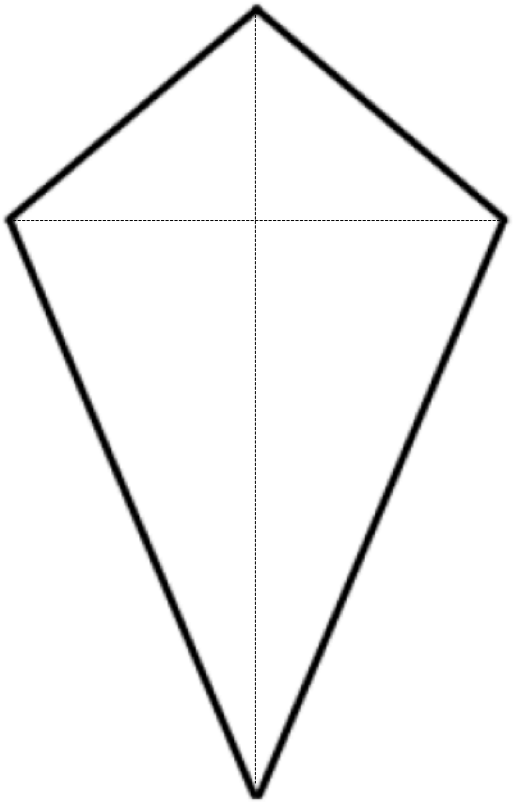
Bisect the three angles below with a compass and straightedge

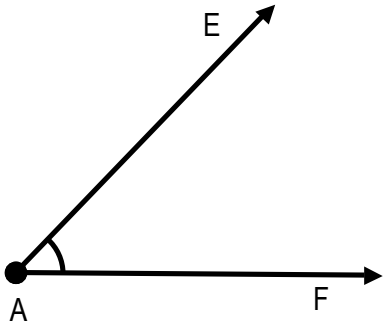






The sticks are represented by the dashed lines in the diagram. Construct angle bisectors as evidence to support your explanation.

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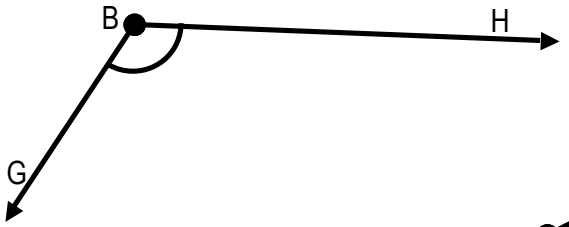
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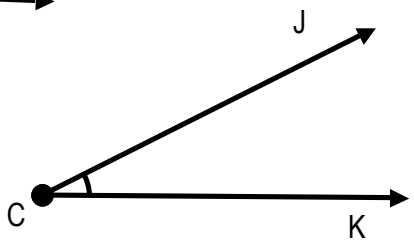
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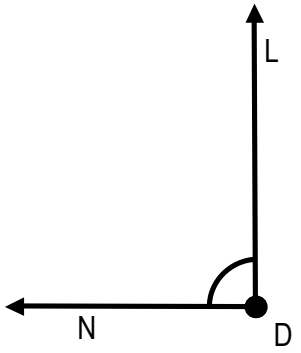
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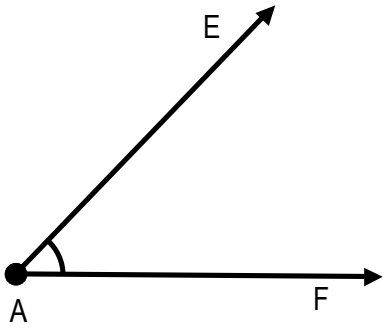
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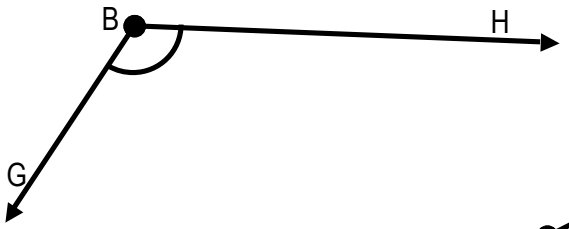
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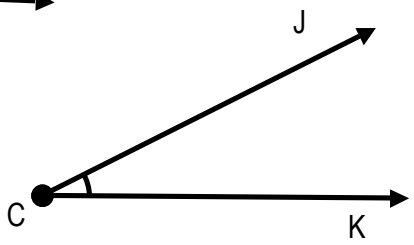
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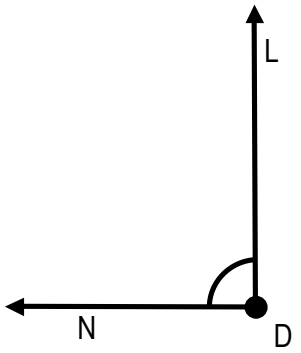
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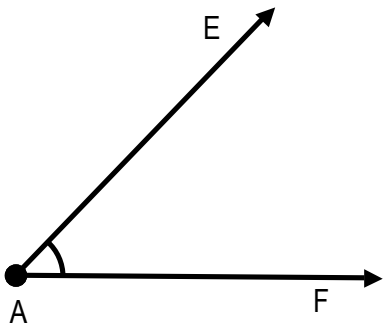
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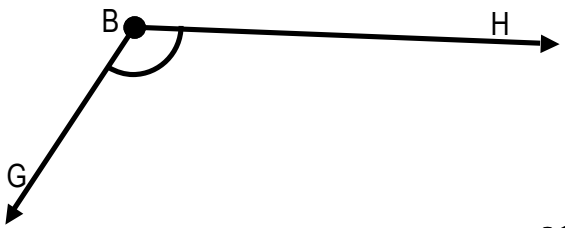
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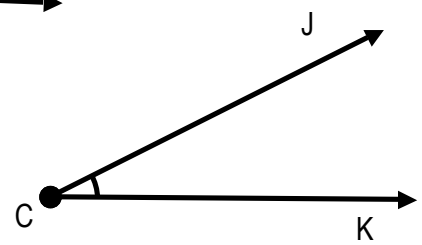
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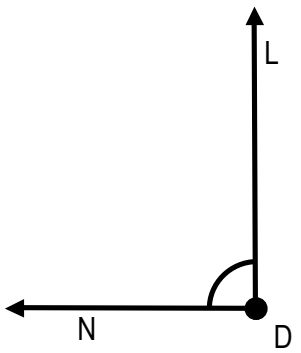
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