☐ **DO NOW – Geometry Regents Lomac 2014-2015** **Date** 9/17 **due** 9/18 **Constructing Regular Hexagons** **1.2**

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

(2) Copy and complete each sentence below:
(a) *Name the angle at right with 3 letters* _____.
(b) *Bisect means* _____.
(c) *A hexagon has* _____ *sides.*

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

**Name** _____ **Per**_____

**SLO:** I can construct a regular hexagon and explain how the compass makes this possible.

☐ (1) **Construction & Explanation Commandments:**

**Thou shalt not say** "They" AND **Thou shalt not say** "It" because _____

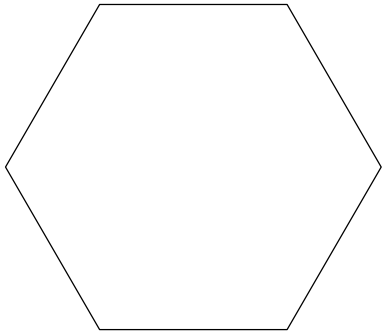
_____

☐ (2) compass highlight-ers **Constructing a regular Hexagon:** Use this radius for every circle you construct: ●——————● Construct in the space below. Directions for the construction are on page 3 of this lesson.

☐ (3) **A Regular Hexagon?**

compass

Use the process for constructing a regular hexagon to determine whether or not the hexagon below is a regular hexagon. Since no center is marked, you will want to start at a corner (vertex) of the hexagon.



I know that this is/is not (choose one) a regular hexagon because: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

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☐ (4) **Constructing a regular Hexagon – take 2**

Look at the construction in (2) of this lesson. You have many small equilateral triangles and a regular hexagon made out of those triangle. If you look *very* carefully, you may find points that you can connect that will make a larger hexagon and points that you can connect to make a larger equilateral triangle. When you find the points, connect them with the yellow highlighter so they can be seen clearly.

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☐ (5) **Exit Ticket**

compass

Show that you have achieved today's SLO, "I can construct a regular hexagon and explain how the compass makes this possible" by responding to the prompt below:

Compare how constructing a regular hexagon and constructing an equilateral triangle are alike and contrast how they are different. You may want to use a sketch to help you explain or to look at your work from lesson 1.1.

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☐ (6) **Homework**:

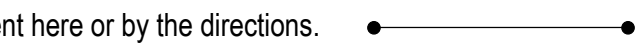
(1) Use your notes like flashcards. Cover everything but the diagrams and guess the term. Then cover the diagram and term and use the descriptions to guess the term. Then cover everything except the term and picture the diagram and try to describe the term.

(2) Use your compass to construct 1 regular hexagon (lesson 1.2), 1 equilateral triangle (lesson 1.1), and a pair of triangles that are reflected (lesson 1.1b).

## Directions for constructing a hexagon.

**Remember – circles are named by their center**

(1) Start with the point that is on the paper. Label it H.

(2) Construct circle H (pencil/pen). Use the measure of the segment here or by the directions. 

(3) Mark any point on circle H and label it E. Draw segment HE. HE is the _____ of circle H.

(4) Construct circle E (pink). Mark the intersections of circle H and circle E and label the intersections X and N. Draw $\overline{HX}$ and $\overline{HN}$. $\overline{HX}$, $\overline{HN}$, and $\overline{HE}$ are the same length because _____.

Draw $\overline{EN}$ and $\overline{EX}$. $\overline{EN}$ and $\overline{EX}$ are the same length because_____.

All drawn segments in the diagram so far ($\overline{HX}$, $\overline{HN}$, $\overline{HE}$, $\overline{EN}$, and $\overline{EX}$) are the same length because _____

_____.

(5) Construct circle X (orange). Mark the new intersection of circle X and circle H and label the intersection with an A. Draw $\overline{HA}$ and $\overline{AX}$. $\overline{HA}$ and $\overline{AX}$ are the same length as all of the other segments in the diagram so far because

_____.

(6) Construct circle A (green). Mark the new intersection of circle A and circle H and label the intersection with a G. Draw $\overline{HG}$ and $\overline{AG}$. HG and AG are the same length as all of the other segments in the diagram so far because

_____.

(7) Construct circle G (blue). Mark the new intersection of circle G and circle H and label the intersection with a O. Draw $\overline{HO}$ and $\overline{GO}$. $\overline{HO}$ and $\overline{GO}$ are the same length as all of the other segments in the diagram so far because

_____.

(8) Construct circle O (purple). Circle O and circle H intersect at point _____ and point _____. Draw $\overline{ON}$. $\overline{ON}$ is the same length as all of the other segments in the diagram so far because _____

_____.

(9) To complete the pattern of circles, you must construct circle ____ (yellow). Circle _____ intersects circle H at point _____ and point _____.

(10) There are _____ triangles in the diagram and they are all _____ because every segment is a _____ of a circle and all of the circles were constructed with the same _____measure.

(11) Use a marker and a straightedge to trace over $\overline{EX}$, $\overline{XA}$, $\overline{AG}$, $\overline{GO}$, $\overline{ON}$, and $\overline{NE}$. You have already justified that these segments are the same length because they are all _____ of circles that were constructed with the same _____ measure. You have constructed EXAGON which is a **regular hexagon**.