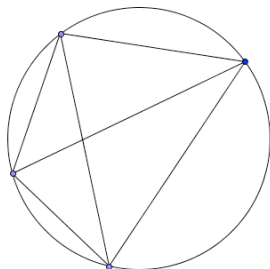**Group Test!** You will work together on the following problems, but everyone fills out the answers on their own paper. Each of you will turn in a paper, but we will randomly choose ONE of the group's tests to grade. Everyone receives that score on the group test. Keep the lines of communication open!
You don't have to do all the problems! Choose 5 of the 6 to do. Everyone needs to cross out the same problem.

4. Cutting up the circle. If four points are chosen on a circle and connected with line segments in every possible way, the result might look like this. Notice that the circle is separated into eight regions.

a. Draw a circle, choose five points on it, and connect them with segments in every possible way. Into how many regions is the circle separated?

b. How many regions would be formed if you started with:
i. just two points   ii. three points?

c. Put the results into the table:

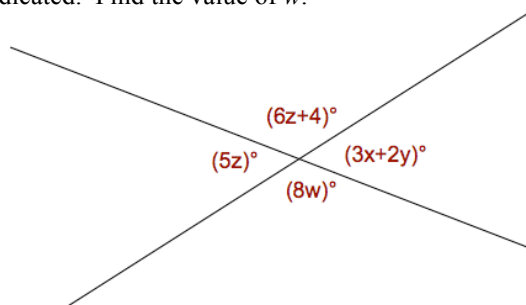| points	2	3	4	5
regions			8	

d. How many regions would you expect to be formed if you started with six points?   seven points?

e. Draw a circle and put 7 points around it. See if the result is as expected.

5. Point T is the midpoint of $\overline{RS}$, W is the midpoint of $\overline{RT}$, and Z is the midpoint of $\overline{WS}$. If the length of $\overline{TZ}$ is x, find the following lengths in terms of x.
Hint: Let $WT = y$.   Show method!
    a. RW b. ZS c. RS d. WZ

6. Given the diagram, with the given angle measures indicated. Find the value of w.

$(6z+4)°$
$(5z)°$
$(3x+2y)°$
$(8w)°$

2. Given points A(-2, 0) and B(10, a). Find the equation for the set of point equidistant from A and B.

3. **Proof .** Prove **Theorem 2-5**: *If two lines form congruent adjacent angles, then the lines are perpendicular.* Begin with a diagram, then state the Given: and the To Prove:

1. **Constructions**. Construct a 165° angle. Include instructions, labeling points as you go.