Week 21 Geometry Assignment

Day 1: pp. 407-408 #1-15
Day 2: pp. 412-413 #1-29
Day 3: pp. Chapter 9 test
Day 4: pp. 418-419 #1-15, 21-25
Day 5: pp. 422-423 #1-15, 21-25

Notes on Assignment:

Pages 407-408:

Work to show:
All problems: Constructions

#1-2: You will need to trace (or photocopy) these triangles.

#3: Use Carlyle circles to do this.

#5: Construct the square first by constructing 2 perpendicular lines to get your first right angle. Opening your compass to the length of about an inch (or whatever you choose), mark off that length along the 2 sides of the right angle. Leaving your compass open, put the point on the end of each of these sides and draw arcs to intersect at your final vertex of the square. Now follow the same process as you did in #4 to make this into an octagon.

#8-11: You will need to trace (or photocopy) these triangles.

#8: You will need to extend side CB to do this.

#10: The median through vertex B must go through the midpoint of side AC. Use the perpendicular bisector of AC to find this midpoint.

#12-15: You will need to trace (or photocopy) these triangles. These constructions are from chapter 7. Refer to the overhead notes from week 14 if needed.

Pages 412-413:

Work to show:
#1-10: Answer as directed.
#11-14: Proofs
#15-27: Show all calculations
#28-29: Constructions

#11: If you have right angles, what does that mean? And what theorem in the beginning of this chapter talked about chords being bisected?

#12: Look at Theorem 9.3. The see if you can get congruent triangles and use CPCTC.

#13: The key to this is getting the two triangles congruent.

#14: You might want to give using an indirect proof a try here. Assume that line AN does not contain the center. Then there is another segment that is perpendicular to the line at the point of tangency. Is that possible? You can write this in paragraph form.

#28: Draw a horizontal diameter and then construct the diameter that is perpendicular to that diameter (like we did in class for the pentagon). You then have 2 options: 1) Open your compass the length of the radius. Set the compass point on each of the endpoints of the diameters and draw arcs where the corners of the square will be. You should have intersecting arcs at each corner. Or, 2) Extend both of your diameters beyond the circle and construct perpendicular lines through the endpoints of the diameters. They will intersect at the corners of the square.

Chapter 9 test:

***For this test, you <u>may not</u> use your theorem sheets, but you <u>can</u> use a calculator.**

<u>For the test:</u>

- Match terms with the corresponding parts in a diagram.
- Identify parts of a diagram.
- Be able to draw and label common tangents to circles and tell what type they are.
- Find angle measures and arc measures based on circles, secants, and tangent lines.
- Know the relationship between a radius of a circle and a chord that bisects it.
- Be able to describe the boundary of a sector and a segment.
- Two chords are equidistant from the centers of two congruent circles. What 3 conclusions can your draw?
- <u>Hint for the proof</u>: Draw in radii to make 4 triangles. Proving these triangles congruent will be necessary for this proof. Also keep in mind what you are trying to prove, and what you need to prove it.

Pages 418-419:

Work to show:
- #1-11: Drawings
- #12-15: Perspective drawings
- CR: True/False

#1-11: Do the best you can with these by yourself. Then look at the drawings in the solutions, and redraw yours if you did it wrong, using the solutions as a guide.

#12: Draw your vanishing point and use that same point for all 3 cubes. Draw your vanishing point and then start with a small square to represent the front face of your cube. Remember that vertical and horizontal parallel lines will remain parallel.

#13: These are 2 separate drawings, each using 2 different vanishing points. Draw your vanishing points and then start with a short, vertical segment to represent the front edge of your cube. Remember that only the vertical parallel lines will remain parallel.

#14: Parallelism is not preserved with 3-point perspective. Draw your 3 vanishing points and then draw the vertex of your figure to start.

Pages 422-423:

Work to show:
- #1-15: Answer as directed.
- CR: True/false

#1-3: Remember that to name a dihedral angle, you must use 2 points from the "hinge" line in the middle. (Example: $\angle$A-BC-D)

#4: The faces can be named by the lower-cased letters.

#5: Remember that the edge is a line, not a segment.

#6: A plane angle is a regular angle (not dihedral).

#8: The symbol $\cap$ means "intersection". What do these 2 things have in common? Where do they overlap?

#9: The symbol U means "union." What do you get when you put these 2 half-planes

together?

#10-15: Possible answers include “space” and “empty set.” Others can be described in words or in symbols.