Week 25 Geometry Assignment

Day 1: pp. 485-486 #1-21, 24-28
Day 2: pp. 492-493 #1-15
Day 3: pp. 496-497 #1-22
Day 4: Chapter 11 test (Do not use theorem/definitions sheets.)
Day 5: pp. 502-503 #1-15, 19-22

Notes on Assignment:

Pages 485-486:

General notes for this section: These problems are all based on the formulas for the volume of a sphere and the Platonic solids. For the Platonic solids, remember that for 3-dimensional figures we use the term "edge" whereas in 2-dimensional figures we would use the term "side."

Work to show:
#1-21: Write the formula, fill it in, and work it ou.
CR: Answer as directed.

#7: Once you substitute in for e, cube it and then multiply through the parentheses using the distributive property. Simplify.

#9: You will have to use the given information to find r.

#13: Use the volume to find r, and then use r to find the circumference.

#14: You will need to take the volume of the ball minus the volume of the air. That leaves the volume of the rubber "shell."

#15: Use the volume formula for a sphere. Fill in the values you are given, and then solve of r.

#17: Once you find the volume in cubic feet, you will need to find out how many 0.13398's you can get out of that volume, so divide.

#19: Find the 2 volumes separately and then add them together.

#20: You are supposed to find the amount of ice cream that will fill the cone plus the amount in the "scoop," which is a hemisphere.

Pages 492-493:

Work to show:
All problems: Constructions

#6-7: Your triangle has some side lengths that you need to find. If you want to copy segment AB separately, divide it as directed, and then copy that particular length onto your angle, you can do that.

#6: First construct the 30° angle. To do this, use AB to construct an equilateral triangle which will have 60° angles. (After copying segment AB onto your paper, mark off the length AB from both ends of AB and see where they cross). Then bisect that angle. Now, using the segment AB that is part of your 30° angle, divide it into 4 segments. Use the length of one piece for a side of your triangle.

#8: If the perimeter is p, then each side must be $\frac{1}{3}p$. Find that length first and then construct your triangle as you did in #6.

#10: To construct a hexagon, you need to know the length of one side, because that is also the radius of the circle. If the entire perimeter is $2p$, how long is one side? Divide segment AB to get the correct length for p.

#11: First construct a hexagon, and then refer to Construction #15 on page 407.

#12: After constructing the hexagon, you will need to find the perpendicular bisector of one of the sides to get the radius of the inscribed circle.

#13: Draw the square's diagonals to find the center of the circles. Get the radius of the inscribed circle the same way you did for #12.

#14: Perpendicular lines through the center will give you the vertices of the inscribed square. Then using those vertices, construct perpendicular lines through the vertices (i.e. tangent to the circle at these vertices) to get the circumscribed square. Alternatively, you can take the radius of the inner circle and draw arcs of that length from each vertex of the inscribed square to find the vertices of the circumscribed square.

#15: To bisect an arc, perpendicularly bisect its chord.

Pages 496-497:

Chapter Review – no notes.

Work to show:
All problems: Write the formula, fill it in, and work it out.

Chapter 11 test:

For the test:

- Match the volume formulas with the name of the figures.
- Given drawings of figures, find their volumes.
- Short answer problems on
  - Congruent Solids Postulate
  - The definition of volume
  - Cavalieri's Principle
  - Impossible constructions
  - Parallelepipeds and their volumes
- Word problems involving volume, including possible combinations of the following:
  - wedges
  - cylinders
  - prisms
  - cones
  - spheres

Pages 502-503:

Work to show:

#1-14: Drawings
#15: Answer as directed.
#19-22: Show formulas and work. Do not just write answers.

#1-6: If you want to, you can photocopy this page or you can trace the figures. You do not need to *construct* the perpendicular bisectors, you can simply *draw* them.

#11-14: Remember again, that you can photocopy these or trace them. For these, you must *construct* the line of reflection. Show your arcs on your drawing.

#19-22: The surface area formulas are from chapter 8 and the volume formulas are from chapter 11.