Week 20 Geometry Assignment

Day 1: p. 392 #1-16
Day 2: pp. 392-393 #20-24
Day 3: pp. 396-397 #1-15, 22-26 *[24-28]**
Day 4: pp. 402-403 #1-22
Day 5: Chapter 9 quizzes 1,2,3,4 (as worksheets)

* Cummulative Review problem #'s adjusted for 3rd edition books

Notes on Assignment:

Page 392:

Work to show:
#1-16: Show work as needed.

#1-10: These are all based on the theorems in this chapter, nothing else.

#11: Find m∠1 and m∠3 and then look at the triangle it makes with ∠DXA.

#13: You will need to find the measure of arc MNO in order to find m∠MLO.

#16: Consider the triangle ∆MYL. With the information you should be able to figure out all 3 angles of thus triangle.

Pages 392-393:

Work to show:
#20-24: Proofs

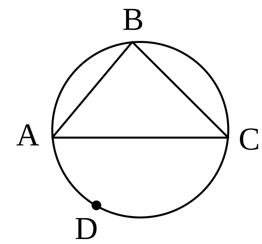
#20: After you write your given for step 1 of the proof, you will want to use the Angle Bisector Theorem to get m∠LIM = ½ m∠LIN. Then write down what you know about the measures of ∠LIM and ∠LIN using Theorem 9.13. Then use some substitution and a little algebra to get your solution.

#21: What else do you know that m∠TSU equals (by Thm. 9.13)? Substitute, use a little algebra, and then change the equal *measures* of the arcs into the *congruence* of the arcs.

#22: Use the parallel lines and a transversal to show that ∠HGI ≅ ∠JIG. Now write what you know about the measures of the angles in regards to their arc measures. You should see some substituting that you can do, followed by a little algebra. You will need to change congruence to measures and/or measures to congruence at least twice in this proof.

#23: Use this drawing: Given: arc ABC is a semicircle

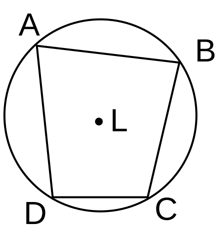
Prove: ∠ABC is a right angle



In order to prove that ∠ABC is a right angle, you will need to show that it equals 90°. It will equal 90° if its intercepted arc (which is arc ADC) is 180° (using Theorem 9.13). You need to show that the measure of arc ADC is 180°. You can state that the measure of arc ABC is 180° because of the definition of a semicircle. (You were given that arc ABC was a semicircle, remember?) Hint: You will need to use the Arc Addition Postulate and a little algebra. (o:

#24: Use this drawing: Given: ABCD inscribed in ⊙L.

Prove: ∠ABC and ∠ADC are supplementary



Working backwards again, in order to get the angles to be supplementary, they must add up to 180°.

By the Arc Addition Postulate, we know that the measure of arc ABC and arc ADC must add to the measure of ⊙L. Since a circle has 360°, then these 2 arcs must add up to 360° (using transitive). The trick with this problem is to take that equation and do a little algebra to it (by multiplying through by ½). You should then use Theorem 9.13 and a little algebra to get
m∠ABC + m∠ADC = 180°.

Pages 396-397:

General notes for this section: In our lesson today, when we took half of the sum or half of the difference, we wrote it as ½ (+). In your solutions, it will sometimes be written as the sum or difference over 2, instead. For example, you may see

$\frac{1}{2}(24+48)$ or you may see $\frac{(24+48)}{2}$

These both mean the same. They both equal 36.

Work to show:

#1-3: Answers only

#4-6: Sketches and labels

#7-15: Show the calculation you are making to find the answer. Do not just write an answer.

#9: Write down the equation using what you are given. You get 36 = ½ (86 – x). You must use the Distributive Property to clear the ( ). Continue to solve the equation for x using algebra.

#11: In order to set up your equation, you need to know what the other arc is, across from the 112°. Knowing that the entire circle is 360°, how can you represent the arc across from the 112°? Use this quantity in your equation.

#12: As with most of these problems, write down the equation based on Theorem 9.17 and what you are given, and solve for x.

#13: This is like #11 in that you need to represent the larger arc in terms of x and then put these into your equation.

#14-15: You should be able to figure out the larger arcs with the information given.

#24 *[26]:* Since the bisectors are perpendicular bisectors of each other, forming 4 congruent triangles, you can use the Pythagorean Theorem to find what the side of the figure is.

#25 *[27]*: Similarly to the problem above, find the area of one of 4 congruent triangles and then multiply by 4.

#26 *[28]*: Count up how many faces your figure will have.

<u>Pages 402-403</u>:

Work to show:

All problems: Show the calculation you are making to find the answer. Do not just list the answers.

#1-10: To find the arc length, you must first find the fraction of the circle that your angle represents. Do this by putting your angle, θ, over 360. That fraction is then multiplied times the <u>circumference</u>, which is 2πr. Putting this all together, we get the formula: $l = \left(\frac{\theta}{360}\right)(2\pi r)$. For these problems, take this formula, fill in for the 2 values given, and then use algebra to find the missing amount.

Note: You can also use the simplified version of the formula, $l = \frac{\theta \pi r}{180}$ which we get when we cancel the 2 into the 360.

#11-18: To find the area of a sector, you must first find the fraction of the circle that your angle represents. Do this by putting your angle, θ, over 360, just like you did for the arc length problems. That fraction is then multiplied times the area, which is πr^2. Putting this all together, we get the formula: $A = \left(\frac{\theta}{360}\right)\left(\pi r^2\right)$. For these problems, take this formula, fill in for the 2 values given, and then use algebra to find the missing amount.

Note: You can also use the version of the formula, $A = \frac{\theta \pi r^2}{360}$.

For the perimeter of the sector, you will need to first find the arc length as you did for #1-10, and then add that to the 2 radii that make up the sides of the sector.

Note: The arc length will be in terms of π, and the radii are not, so do not combine them! The are not like terms!

#19: Draw a picture for this problem. The numbers are large, so be careful.

#20: Remember that you will need to radius to figure out this problem, and you are given the diameter.

#21: Find the area of the sector, and then subtract the area of the triangle. (Notice that it is an equilateral triangle, so use the formula for the area of an equilateral triangle found in the last chapter.)

#22: Do this the same as #21, but this is a right triangle and not an equilateral triangle, so find its area accordingly.

Chapter 9 quizzes 1,2,3,4:

These quizzes review the basic concepts of chapter 9 so far. No additional notes should be needed.