Week 19 Geometry Assignment

Day 1: pp. 369-371 #1-18
Day 2: pp 370-371 #19-20, 22-24, 26-30
Day 3: pp. 378-380 #1-20, 22-23
Day 4: pp. 385-386 #1-15
Day 5: pp. 386-387 #16-20

Notes on Assignment:

Pages 369-371:

Work to show:

#1-4: Answers only.
#5-13: Show any work needed.
#14-16: These will need work shown.
#17-24: Proofs
#26-36: Answers only

#1-16: Use the different theorems of this section to determine the lengths asked for.

#9-11, 13: These will all involve use of the Pythagorean Theorem.

#16: We know that IF must equal BE (because of Thm 9.2). So, set those 2 quantities equal and solve for x. Then you can figure out what BE is, and thus BC.

#17-19: For all 3 of these proofs, you will need to use the fact that radii of a circle are congruent (which we proved earlier this year in an assignment). Also, keep in mind that sometimes you need to show lengths equal before you can say they are congruent.

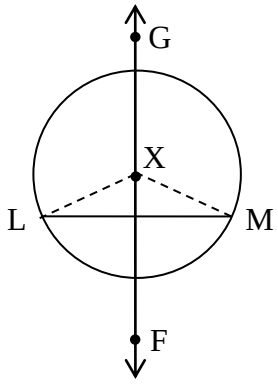
#17: If you can prove that ΔADC and ΔGDE are congruent, then you can use CPCTC to get your angles congruent. You can get SSS using the theorems in this section.

#18: If you can establish that these are right triangles, then you can use HL pretty easily to prove triangle congruence.

#19: Prove this using HL.

#20: You need to prove that LM and MN are congruent. Use Theorem 9.2.

#22: Use the following drawing for this problem: You will also need to use theorem 7.5.



#23: If you can prove that segment PQ is perpendicular to segment AB, then you can use theorem 9.1.

#24: In order for the circles to be congruent, the radii must be proven to be congruent. The way to do this is to prove that $\Delta ACE \cong \Delta BDF$ and use CPCTC. In order to get 2 angles to go along with the sides that are given as congruent, you will need to use parallel lines cut by the transversal line EF. Look at each set of parallel lines separately with line EF.

#26-30: You can use the glossary to help with these if you need to.

Pages 378-380:

Work to show:

#1-10: Show any work needed.
#11-15: Answers only
#16-20: Drawings
#22-23: Proofs

#1-10: For these problems, use what you have learned in this section about congruent lengths, perpendicular lines, etc. Congruent radii will also play a part, as will the Pythagorean Theorem occasionally. Also, these are all independent problems. Do not use the answer from one problem in another problem.

#22: Theorem 9.7 will get you started, but remember that this theorem tells you that certain segments are congruent. You cannot "add" segments. You can only add lengths. (Hint: Change the congruence relationships to measures and then add the 2 resulting equations.)

#23: This is very similar to #22 except that instead of adding the lengths of the congruent segments, try subtracting them. (Both would be using the Addition Property of Equality as a reason.)

Pages 385-387:

Work to show:

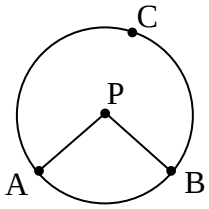
#1-13: Show any work needed.
#14-20: Proofs

#1-3: Minor arcs are less than 180°, major arcs are greater than 180°, and semi-circles equal 180°.

#4-9: Find all of the measures of the central angles first. Then add or subtract these amounts as necessary.

#10: You are to list all of the *sets* of congruent arcs. Each pair will be congruent.

#14: Use this drawing for this problem:



Given: Circle P with minor arc AB and major arc ACB.
Prove: $m\,arcACB = 360° - m\,arcAB$

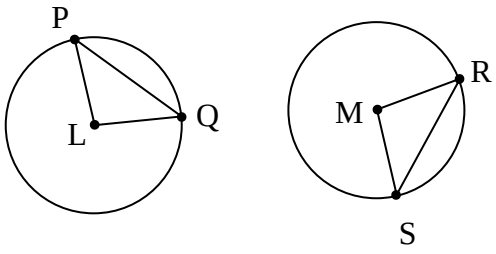
What do you know about the measurement of the circle? What do you know about the sum of the 2 arcs? (Don't say that they add to 360°. This is what you are, in effect, proving.) Use substitution to get the sum equal to 360°. Then you can manipulate that equation using subtraction on both sides to get what you want.

#15: What do you know about the segments if you know that the central angles are congruent?

#16: You will do addition and subtraction here to get what you are trying to prove. Remember that you will need to use the *lengths* and not the *segments* to add and subtract. Use the Arc Addition Postulate and substitution (or transitive.)

#17: Using the midpoint definition and what you are given, you should be able to show that all 4 of the segments are congruent. Then use the addition property of equality and the definition of betweenness followed by substitution to get your answer. (Note: The drawing is not drawn quite accurately. The segments don't look congruent.)

#18: Use the following drawing:

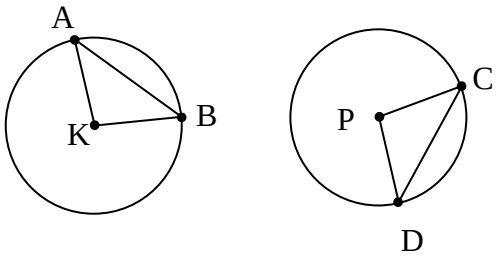


Given: $\angle L \cong \angle M$
$\odot L \cong \odot M$

Prove: $\overline{PQ} \cong \overline{RS}$

For this proof, prove the triangles congruent and then use CPCTC.

#19: Use the following drawing:

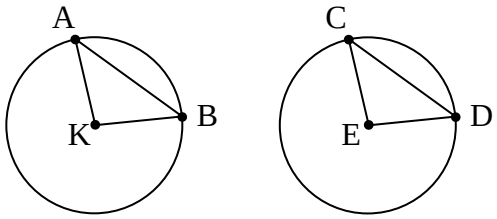


Given: $\overline{AB} \cong \overline{CD}$
$\odot K \cong \odot P$

Prove: $\angle AKB \cong \angle CPD$

For this proof, as in #18, prove the triangles congruent and then use CPCTC.

#20: This theorem is an "if and only if" so you need to prove it both ways. Use the following drawing:



Part 1: Given: $arc AB \cong arc CD$
$\odot K \cong \odot L$

Prove: $\angle AKB \cong \angle CLD$

This is easily proven using theorems 9.9 and 9.10.

Part 2: Given: $\angle AKB \cong \angle CLD$
$\odot K \cong \odot L$

Prove: $arc AB \cong arc CD$

This is also easily proven using theorems 9.9 and 9.10.