Geometry Week 14 Assignment:

Day 1: pp. 264-265 #1-12
Day 2: pp. 265-266 #13-19, 21-25 *[22-26]**
Day 3: pp. 270-272 #5-13
Day 4: pp. 271-272 #14-16, 21-25, *[22-26]*,* p. 278 #24-28
Day 5: pp. 275-278 #1-20

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

Notes on Assignment:

***General Note: When doing proofs, there is often more than one way to prove something. So, your proof may not match the one in the book and that is ok. Also, if you do not know where to start on a proof, start with your "Need" and "Know" lists.**

Pages 264-266:

Work to show:

#1: Four answers and drawings
#2-9: Answers only
#10-12: Proofs
#13-19: Proofs
CR: Answers only is ok

#1-8: If you need help with these problems, refer to the overheads from this week's lessons. (www.mcg.net/nelson/chatmath.htm)

10: HA is just SAA if you include the right angle as one of the angles. All you need to do is show that the right angles are congruent, (Theorem 4.1) and then you will have SAA.

#11-12: You are to use the same diagram as you used in #10, but you need to disregard the markings that say $\angle R \cong \angle U$ and $\overline{RT} \cong \overline{UW}$. Do these proofs the same way you did #10. If you can show that the right angles are congruent, you can use SAA and ASA to prove both cases of the LA congruence theorem.

#13: You have got a set of congruent legs. You need to show congruence of another leg (for LL), the hypotenuse (for HL) or another angle (for LA).

#14: Sometimes it is helpful to redraw overlapping triangles separately. Fill in your given and see what else you know that will help you prove the congruence.

#15: You are told the lines are perpendicular, but you have got to use that to prove that you have right angles, and thus right triangles (which allows you to then use HL, LL, LA, and HA). You also have the 2 triangles sharing a side, so using reflexive might be an option.

#16: There's more than one way to prove this. One option is to look at ∆XWZ. If $\overline{XW} \cong \overline{WZ}$, then what kind of triangle is ∆XWZ? And what does that say about ∠Z and ∠X?

#17: You can use LL, but first need to prove that you have right triangles using linear pairs and supplements.

#18: Work backwards from the definition of midpoint. What do you need in order to say that Y is the midpoint? Can you get that from what you are given or do you need to prove ∆XYW ≅ ∆ZYW first?

#19: Prove congruence first and then use CPCTC.

Pages 270-272:

Work to show:

#5-7: Four triangles for each problem
#8: Answer and circle
#9-10: Answers only
#11: Answer and circle
#12-13: Answers only
#14-16: Proofs
CR: Answers only

#5-7: The easiest way to do these would be to trace each triangle 4 times onto your paper, and leave room so that you can do the constructions. You will see how these points differ depending on whether you have an acute, right, or obtuse triangle. The points may be inside the triangle, outside the triangle, or even on the triangle.

#14: If it is the perpendicular bisector, then that gives you 2 bits of information – it bisects the segment into 2 segments of equal length, and it is perpendicular (from which we can prove we have right angles and thus a right triangle). All you need is either congruent hypotenuses (see theorem 7.5) or the other set of congruent legs (also easy to get).

#15: See what the definitions of median and altitude tell you. It should give you enough information to help you figure this one out.

#16: Draw a picture and mark what you know to be true. The congruence should show itself pretty easily. (Hint: Do not try and prove this as a right triangle. It's not necessary.)

Pages 275-278:

Work to show:

#1-6: Two to four answers per problem
#7-15: Answers only is ok
#16-20: Proofs
CR: Answers only is ok.

#11-15: You may want to sketch these.

#16: Draw right triangle ABC where ∠C is the right triangle. Extend side BC to show the exterior angle at C. Put a point on the extension and call it D. Since ∠ACD = the sum of the other 2 angles (Exterior Angle Theorem), then if you can show that ∠ACD = 90° then you have what you need.

#17: Use your result of exercise #16 to state that 90 = m∠A + m∠B. Then see if you can use one of the inequality facts on page 275 to finish the proof.

#18: Draw ΔABC where A is the vertex (which means sides AB and AC are congruent). Extend side AC to show the exterior angle of A. Label a point D on the extension. You need to show that m∠DAB = 2m∠B. (or = 2m∠A) Use what you know about the base angles of an isocleles triangle, along with the Exterior Angle Theorem to do this proof.

#19: Write down all of the inequality relationships involving exterior and remote interior angles. You will be able to use transitive relationships to prove what you are asked to prove.

#20: You will need to use the parallel lines to show that ∠BCE ≅ ∠DEC. You will need that, as well as Exterior Angle Inequality Theorem and transitivity to do this proof.

#24-28: Name the theorem from section 6.4 that each of these illustrates.