Solve the following problems on a separate sheet of paper. This problem set is to help you recall the concepts covered in Chapters 4 and 5, which are the chapters on the third quarter retest. These questions do not exhaust the topics covered (as in they do not cover everything), but they will help review major material and formulas.

1. For the following angles, determine which quadrant they terminate in and convert the angle measure to radians (if in degrees) or degrees (if in radians).
   1. b. c.
2. Evaluate the expression exactly without a calculator.
   1. b. c.
3. The terminal side of an angle goes through the point (-3, 6). Evaluate the six trig functions of the angle.
4. Describe the transformations that occurred to create the function: . Also, identify the amplitude, phase shift, vertical shift, and period.
5. Use your calculator to evaluate the following expressions.
   1. b.
6. Find the exact value of *x* without using a calculator.
   1. b. c.
7. Find the length of the arc intercepted by a central angle of in a circle with radius 2.
8. The angle of elevation of the top of a building from a point 100m away from the building on level ground is 78 degrees. Find the height of the building.
9. From the top of a 150 foot building Flora observes a car moving toward her. If the angle of depression of the car changes from 18 degrees to 42 degrees during the observation, how far does the car travel?
10. Prove the following.
11. Solve the following.
12. Use the sum or difference formula to expand or condense the following.
13. Solve the triangle with the following given sides/angles. (You should find all missing sides/angles).
14. Find the area of the following triangles.
15. A hot air balloon is seen over Tucson, AZ, simultaneously by two observers at points *A* and *B* that are 1.75 miles apart on ground level. The angle of elevation at *A* is 33 degrees, and the angle of elevation at *B* is 37 degrees. How high is each person from the balloon?