Week 16 Pre-Calc Assignment:

Day 1: pp. 394-397 #1-13 odd, 19, 23, 25, 31, 35, 37, 41, 45, 49, 55, 65, 71, 77, 79, 95, 97
Day 2: pp. 399-401 #1-17 odd, 25, 29, 33-51 odd, 55, 59, 61, 65, 71, 83-87 odd, 91
Day 3: Chapter 5 test
Day 4: pp. 416-418 #1-7 odd, 19-23 odd, 29-41 odd
Day 5: pp. 423-426 #1-5 odd, 9, 23, 25, 29-35 odd, 39

Notes on Assignment:

Pages 394-397:

#1-7: Use SOHCAHTOA to find the the sine, cosine, and tangent. Then use those values in the double-angle formulas.

#9: Expand sin 2x and then solve by factoring.

#11: Sin 2x is embedded in this equation. Substitute sin 2x in where it belongs and solve.

#13: Expand cos 2x and then solve. You will need to write everything in terms of cosine, and then solve by factoring.

#19: Find the double-angle formulas within these expressions (you may have to factor). Substitute and rewrite the expression.

#23-25: Find the sine and cosine first using the Pythagorean Identity. Then find the exact values of the values requested. Remember that tangent is easiest to find using sine/cosine.

#31: Remember that $\cos^4 x = (\cos^2 x)^2$. Substitute and simplify.

#35-37: Use the triangle to find the sine, cosine, and tangent of θ. Then use these values in the half-angle formulas. Also, remember that sec θ/2 is the reciprocal of cos θ, etc.

#41-45: Write the angle as something over 2. For example, in #41 write 75° as 150°/2 and put it in the half-angle formulas.

#49: Remember allsintancos so you get the correct sign on the answers.

#55: Go backwards with the half-angle formulas.

#95-97: You have many more formulas to use. You may have to work with both sides to see where they "meet."

Pages 399-401:

#7: Use the sine and cosine to find the other trig function values.

#9: Remember that the sine and cosine of complimentary angles are equal. (See the cofunction identities in section 5.1)

#11-17: These are only using the fundamental trig identities in section 5.1.

#39-45: You may need to factor, and you may need to write all equations in terms of a single trig function.

#47-49: These are like #39-45 except you won't always know the values from your unit circle. If not, take the arc function of each side and leave the answer in terms of the arc function. Remember to check you interval $[0, 2\pi)$ and consider other reference angles that will work.

#85: Find cos u first. Then put the values into the half-angle formulas. Because it is a quadrant 1 angle, all values will be positive.

Chapter 5 test:

This is an open book test.

Pages 416-419:

#1-7: Use the Law of Sines.

#19-23: It would be helpful to draw the triangle and compare a and b. Then if needed, solve for h.

#29-33: For the angles given in DMS, you can either enter the angle in DMS, or change to decimal degrees. Make sure you are in DEGREE mode.

#37: Set up the Law of Sines using $(42° - \theta)$ for one of the angles. Solve for $(42° - \theta)$ using algebra and then take the $\sin^{-1}$ (i.e. arcsin) of both sides and finish solving for θ.

#39: If you drop the dotted lines down from the tree and gazebo, and then make right angles towards the dock, you get 2 right triangles. Using your bearing angles, find the angles that the triangles make at the dock. These 2 angles must add with the dock angle of the given triangle to give 180°. Once you find that angle, use the Law of Sines to find the distance from the gazebo to the dock.

#41b): Drop a perpendicular down from the plane to form a right triangle. Finding the angles of this right triangle will help you find the obtuse angle that the air distance to touchdown makes with the runway. (Think about complementary and supplementary angles.) When you use the Law of Sines to find the air distance, you will get a large answer, but remember that this answer is in feet. Then answer is the solutions manual is in miles. (1 mile = 5280 feet)

#41c): The ground distance is the bottom leg of the right triangle you formed for part b). You will also need to use the answer from part b). (Hint: Use SOHCAHTOA.)

#41d): You can either do this like you did part c), or else use Pyth. Thm.

Pages 423-26:

#3: Use the Law of Cosines to find side a. Then use the Law of Sines to find angles C and B. Notice that your 3 angles do NOT add up to 180 degrees. That means that when you got *sin* C = 0.8069, you need to consider that there are 2 angles with that sine. One is acute and one is obtuse. Since C is the largest angle (it's across from the largest side), it's possible that it's obtuse. Since B is NOT the largest angle, you know it's acute, which means the answer you got on your calculator is the only possible answer for B. Use the answer you got for angle B, add it to angle A, and then subtract that from 180 to find C.

#29: Use the Law of Cosines to find the angles of the triangle. Then draw your north-south lines through the turning points (vertices) of the race and figure out the bearings.

#33: Remember that the longest side is across from the largest angle.

#35: You need to take into account the speed of each ship and the time they travel to get their individual distances. Then, using the bearing angles, you will be able to find the angle of the triangle that is included by the individual distances.

#39: Assume that the diamond is a square. That will help you find the angle that you need.