Week 22 Pre-Calc Assignment:

Day 1: pp. 599-601 #1, 5, 9-17 odd, 23, 25, 29-41 odd
Day 2: pp. 603-607 #9, 19, 29, 35, 43, 51, 61, 69, 71, 75, 77, 83, 91, 93, 101, 105, 109, 113, 115
Day 3: Chapter 8 test – part 1 (no calculators) and part 2 (with calculators)
Day 4: pp. 621-624 #1-61 odd
Day 5: pp. 621-624 #63-105 odd, 123-133 odd

Notes on Assignment:

Pages 599-601:

#9-11: Use the calculator to find the determinants.

#23-25: Put the 3 points into the area formula and multiply out the determinant. Take your resulting equation and solve for x. You may get more than one answer because of the ± sign.

#35: For the points to be collinear, they must work in the test equation. Plug them in and multiply out the determinant. Take your resulting equation and solve for x.

Pages 603-607:

#9: Because it is not unique, your answer may not match the one in the solutions manual.

#29: Use the rref(function of your calculator.

#51: Do not use a calculator.

#69-71: Do not use a calculator. Augment the coefficient matrix with the identity matrix to get [A : I] and then do row operations until you get the matrix [I : A^{-1}].

#77: Use the shortcut formula.

#83: Find A^{-1} using the method described in #69-71. Then since $X = A^{-1}B$, you need to multiply A^{-1} times the matrix formed by the column of constants in your system.

Chapter 8 Test:

For the test:

Part 1 – **No Calculators!**

- Use elementary row operations to put a matrix in reduced row echelon form.
- Use matrices to solve a system of equations, using row operations and back substitution.
- Add, subtract, and multiply matrices.
- Find the inverse of a matrix.
- Use an inverse matrix to solve a system. (Remember that $X = A^{-1}B$)
- Find the determinant of a matrix.
- Find the determinant of a matrix by expanding along a row or column.
- Solve a system using Cramer's Rule.
- Use a determinant to find the area of a triangle.
- Use a determinant to find the equation of a line.

Part 2 – **With Calculators**!

- Using the reduced row-echelon feature, solve a system of equations.
- Add, subtract, and multiply matrices.
- Find the inverse of a matrix.
- Solve a system of linear equations using the inverse of the coefficient matrix.
- Find the determinant of a matrix.

Pages 621-624:

#1-23: Put the numbers 1 through 5 in for n and compute. Do half of these by hand, and the other half using your calculator (any of the methods discussed in class).

#25-29: Put the given number for n in for n and compute. Do the first one by hand and the other 2 using your calculator. Enter the sequence at [Y=]. Then at the main screen, type [2^{nd}] [u] (n) [ENTER].

#31-35: Make sure you are in SEQ mode. Enter the sequence into the graphing calculator at the [Y=] screen. Set nMin=1 if it is not that already. Set the graph to dotted and press [GRAPH]. Press [WINDOW] to see that your nMin=1 and your nMax=10 (because you are to graph the first 10 terms). Then, to see the whole graph, press [ZOOM] [ZoomFit]. To see the individual terms, use [TRACE] and the left and right arrows.

#41-53: Write the terms, and then underneath, write the values of n, starting with 1. See if you can tell what is done to n to get the term above it. That will give you the rule for your nth term. Remember that if the signs are alternating, you will need (-1) raised to some power related to n.

#55-57: You are given the first term. Notice how the term is related to the term before it.

#59-61: Do these like #41-53. List the first 5 terms, then underneath write the values of n, starting with 1. See if you can tell what is done to n to get the term above it. That will give you the rule for your nth term. Note: These are defined as recursive, but can also be defined in terms of n. That's what you are trying to do – define them in terms of n.

#63-69: Remember how we cancel factorials. For #67 and #69 it may be helpful to expand the first part of each factorial until you can see what will cancel. (Remember that each term is one less than the previous term.)

#71-81: Be careful to note the value of the upper and lower limits of the index. They don't always start with 1.

#83-85: Press [2nd][LIST] [MATH][sum( ] [2nd][LIST] [OPS][seq( ] *expression, n, start, stop*)) [ENTER].

#87-95: You will have to first find the rule for the nth term as you did for #41-53. Then, based on the number of terms that are represented, set your lower and upper limits. (Note: These can all start with $i = 1$.) Write your sigma, your index limits, and your rule for the nth term.

#97-99: Do these the same way you did #83-85.

#101-103: Write out as many terms as you need to in order to see the fraction represented. For #101 it will be a familiar fraction. For #103, it is not. Find the sum of the first 20 (at least) terms, by using [2nd][LIST] [MATH][sum( ] [2nd][LIST] [OPS][seq( ] *expression, n, 1, 20*)) [ENTER]. Then press [MATH] [<Frac] [ENTER]. This should give you the fraction for the decimal. (You can do this all in one step if you want. Press [2nd][LIST] [MATH][sum( ] [2nd][LIST] [OPS][seq( ] *expression, n, 1, 20*)) [<Frac] [ENTER].) Note: You must sum at least 12 terms to get the calculator to change it to a fraction correctly. That's why we summed at least 20.

#105: Put this into the [Y=] screen and then use the [TABLE] to find the values you want.

#123-125: The function must pass the horizontal line test to have an inverse function. Graph it on your calculator if you need to, in order to see if it does. If it does, than you need to switch the x and y for the inverse, and then solve for y.

#127-133: You can do these on your calculator if you want.