Week 21 Pre-Calc Assignment:

Day 1: pp. 579-581 #1-5 odd, 11-37 odd
Day 2: pp. 579-581 #39-49 odd, 61-73 odd, 77-81 odd
Day 3: pp. 587-589 #1-45 odd
Day 4: pp. 587-589 #47-77 odd, 93-103 odd

Notes on Assignment:

Pages 579-581:

#1-5: You need to multiply AB and BA, showing that each product gives you the identity matrix I.

#11-25: Make the double-augmented matrix [A : I] and perform row operations on it until you get the matrix [I : A^{-1}]. Do not use the shortcut formula for the *2 x 2* matrices for these problems.

#27-37: Enter the matrix into the calculator as matrix A using the matrix editor. Then use [2^{nd}] [MATRX] [A] [x^{-1}] [ENTER] to find the inverse, if it exists.

#45-47: Get matrix A from the coefficients, and matrix B from the numbers on the right of the equal sign. Use $X = A^{-1}B$ to solve. You already have A^{-1} from exercise #13.

#49: Do the same as #45-47. You already have A^{-1} from exercise #21.

#61-65: Enter the coefficient matrix into the calculator as matrix A and the numbers on the right of the equal sign as matrix B using the matrix editor. Then solve $X = A^{-1}B$ by entering $A^{-1}B$ into the calculator. Press [2^{nd}] [MATRX] [A] [x^{-1}] [2^{nd}] [MATRX] [B] [ENTER] for the solution matrix X.

#67-69: Use the system given. Enter the coefficient matrix into the calculator as matrix A and the numbers on the right of the equal sign as matrix B using the matrix editor, putting in the total investment and annual return amounts in the correct places in matrix B. Then solve $X = A^{-1}B$ by entering $A^{-1}B$ into the calculator. Press [2^{nd}] [MATRX] [A] [x^{-1}] [2^{nd}] [MATRX] [B] [ENTER] for the solution matrix X.

#71: Do this similarly to #67-69. Part a) and b) are 2 separate problems. Matrix A^{-1} will be the same for both problems, but B will change.

#77: Remember that with absolute value inequalities, greater than goes to a compound "or" inequality.

#79: Take the log of both sides and then pull the exponent out of the log expression. Solve for x.

#81: Solve for $\log_2 x$ first. Then take both sides as exponents on 2. That will undo the log on the left. Finish solving.

<u>Pages 587-589</u>:

#1-15: For a single element in a matrix, the determinant is defined as being the element itself. For the 2 x 2 matrices, take the "downs – ups."

#17-21: Enter the matrix into the calculator as matrix A using the matrix editor. Then use [2nd] [MATRX] [MATH] [det(] [2nd] [MATRX] [ENTER] to find the determinant, if it exists.

#23-29: List the minors as M_{11} = ___, M_{12} = ___, M_{21} = ___, etc. List the cofactors as C_{11} = ___, C_{12} = ___, C_{21} = ___, etc. Remember that the cofactors are the same as the minors, except for the sign. Remember the checkerboard pattern that the signs make for cofactors.

#31-35: Follow the checkerboard pattern of signs for cofactors to get the operators correct.

#37-51: For the 3 x 3 matrices you can use the "downs – ups" if you would like. Otherwise, expand by cofactors on the row or column of your choice. (Choose the row or column that has the most zeros!)

#61-67: Find the determinant of A and B using "downs – ups" or cofactor expansion. Then multiply the 2 matrices together to get the matrix AB. Find the determinant of AB using "downs – ups" or cofactor expansion.

#69-73: Work with one side to show that you get the other side, or you may need to work with both sides until you get something that matches.

#75-77: Carefully multiply the "downs – ups" and set that equal to zero and solve.

#93-97: Remember that the domain is all real numbers except those that will make the function undefined. You may want to graph these on your calculator to verify your answer.

#101-103: Do not use a calculator for these. Make the double-augmented matrix [A : I] and perform row operations on it until you get the matrix [I : A^{-1}]. You can use the shortcut formula for the *2 x 2* matrix if you want.