Week 6 Pre-Calc Assignment:

Day 1: pp. 140-142 #5-39 odd
Day 2: pp. 140-142 #45-51 odd, 57-61 odd, 65-79 odd, 89-97 odd
Day 1: pp. 148-49 #1-57 odd
Day 2: pp. 148-49 #59-101 odd, omit #89

Notes on Assignment:

Pages 140-142:

#13: Remember to put 0x in the divisor to hold the place.

#15: Remember to put $0x^3$ and 0x in the top polynomial.

#17: You must multiply out the denominator first.

#37-39: First use synthetic division so you can write it in the form f(x) = (x-k)q(x) + r. Then put k into f(x) to verify that you get the same number as your remainder was in the synthetic division. (For example, in #37, do synthetic division using k=4. You should get f(x) = (x-4)(*something*) + remainder. Your remainder is also what f(4) should work out to be.)

#45-47: You do not need to verify using another method.

#57-59: Use synthetic division with the first factor. Use synthetic division on the resulting quotient polynomial and the 2^{nd} factor. Take the resulting quotient polynomial and factor it if necessary to find the remaining factors and zeros.

#61: If (2x+1) is a factor, then x = -1/2 must be a zero (since 2x+1 = 0 gives us x = -1/2). This means we can use (x+1/2) as a factor instead of (2x+1). This allows us to use synthetic division. (We will put -1/2 out front.) Do the same with (3x-2).

#65b) & 67b): Your zero function should show you that one of the zeros is an integer. Use this zero in synthetic division to get the quotient polynomial. In both #65 and #67 the resulting quadratic will not factor, so use the quadratic formula to find the factors.

#69: Remember from #61 that if you have division by (2x-3) you can write this as (x – 3/2). Use this in your synthetic division.

#73: Either us long division or notice that $x^2 + 3x + 2 = (x+1)(x+2)$. An alternate method would be to divide out (x+1) and then divide the resulting quotient polynomial by (x+2).

#75a): Use L1 and L2 or make lists called YEAR and M. After graphing your statplot, remember to use [ZOOM] [ZoomStat] to set your window.

#75b): Use [STAT] [CALC] [CubicReg] for a cubic regression equation. When you enter your lists, also enter Y1 using [VARS] [Y-VARS] [Function] [Y1]. Your screen should show: CubicReg L1,L2,Y1. Press [ENTER] for your equation and [GRAPH] to see the graph.

#75c): Since your equation is already stored in Y1, go to [TABLESET] and set TblStart = 0 (for t = 0) and Δtbl = 1. Press [TABLE] to see the values.

#75d): 2005 is t = 15. Use [TABLE] to find the value at 15, not synthetic division. ZOOM out on your graph to see what the graph looks like once you get past your scatterplot values. Is your equation a good model for predicting the number of military personnel in the future? Why or why not?

Pages 148-49:

#27-39: Remember to use Distributive and FOIL. Use FOIL when squaring a complex number also.

#57: Multiply out the denominator first, and then choose your conjugate.

#59: You must get a common denominator. To do this, multiply the first fraction by $\frac{(1-i)}{(1-i)}$ and the 2nd fraction by $\frac{(1+i)}{(1+i)}$.

#61: You must get a common denominator. To do this, multiply the first fraction by $\frac{(3+8i)}{(3+8i)}$ and the 2nd fraction by $\frac{(3-2i)}{(3-2i)}$. Multiply the numerators and then add both numerators and put the sum over the common denominator, which is $(3+8i)(3-2i)$. When you multiply out the denominator you will get a complex number, so you will have to rationalize the denominator as well, to finish the problem.

#63-71: You can clear the fractions or decimals first if you want to.

#81: Remember that cubing means to multiply it times itself 3 times. It doesn't mean to cube each term.

#83: Factor out all of the i^4's first, because $i^4 = 1$.

#101: Use buckets to help with the equation. Multiply the buckets.