Math 20C Exam 1 Helton

1. Evaluate the following expressions and write your answer in the form $a + bi$.

   (a) $\dfrac{2}{1-3i}$

   (b) $(5-2i)(-3-i)$

2. Find the equation of the plane passing through the point $(1, 0, -3)$ and parallel to the plane $z = 2x + 3y$.

3. (a) Write Taylor's Series for the function $f(x) = \sin x$ at $x_0 = \pi$.

   (b) Estimate the values of x for which the corresponding Taylor polynomial of order 2 is a accurate to within .01.

4. What is the equation for the curve which is the intersection of the vertical plane P_1 through $(0, 0, 0)$ and $(1, 2, 0)$ and the plane P_2 given by $2x+6y+3z = 4$. To maximize partial credits first write down a clear description of P_1.

5. Evaluate the following expressions and write your answer in the form $a + bi$.

   (a) $(1+i)^{50}$

   (b) e^{6+2i}