Due Date: July 4, 2011 Monday

NAME:..

Ali Sinan Sertöz

STUDENT NO:..

Math 302 Complex Analysis II – Homework 6

1	2	TOTAL
10	10	20

Please do not write anything inside the above boxes!

Check that there are 2 questions on your booklet. Write your name on top of every page. Show your work in reasonable detail. **A correct answer without proper or too much reasoning may not get any credit.**

Q-1) Show that $f(z) = e^z - z$ has infinitely many zeros and that each zero is simple. *(5+5 points)*

Solution:

Q-2) Find explicitly a polynomial $P(x, y)$ such that it is harmonic in the unit disc D around the origin and restricts to x^3y^3 on the boundary of D. (Note that x^3y^3 is not harmonic anywhere except the origin.)

Show your work in detail.

Solution: