Due Date: June 13, 2011 Monday NAME:.....

Ali Sinan Sertöz STUDENT NO:.....

Math 302 Complex Analysis II – Homework 1

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.

NAME: STUDENT NO:

Q-1) Let $f : U \to \mathbb{C}$ be a complex valued function of the form $f(z) = u(x, y) + iv(x, y)$, where U is an open region in $\mathbb{C}$. We know that if $f'(z)$ exists at every point $z \in U$, then the Cauchy-Riemann equations $u_x = v_y$ and $u_y = -v_x$ hold at every point of U.

What can you say about the converse of this fact?

Solution:

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Q-2) Find the Laurent expansion of $\mathrm{cosec} z$ around $z = 0$.

Solution: