

Due Date: December 26, 2011 Monday

NAME:.....

Ali Sinan Sertöz

STUDENT NO:.....

Math 302 Complex Calculus II – Homework

6	7	8
10	10	10

Please do not write anything inside the above boxes!

Show your work in reasonable detail. A correct answer without proper or too much reasoning may not get any credit.

Q-6) Find a formula for $\Gamma\left(\frac{n}{2}\right)$, where n is a positive integer.

Solution:

Q-7) Prove in detail and in your own words that

$$\Gamma(z) = \lim_{n \rightarrow \infty} \int_0^n t^{z-1} \left(1 - \frac{t}{n}\right)^n dt, \quad \text{for } \operatorname{Re} z > 0.$$

Solution:

Q-8) Prove in detail and in your own words that $\sum_{p \text{ prime}} \frac{1}{p}$ diverges.

Solution: