

University of Management and Technology (UMT)
Department of Mathematics
QUIZ#9
Complex Variable and Transforms- MA 233-Sec.C
Spring Semester 2015

Maximum Marks:10(2.5%) Instructor: Prof. Dr. Muhammad Shaukat Raheem Ch
Time: 10 min Date: 10th June, 2015

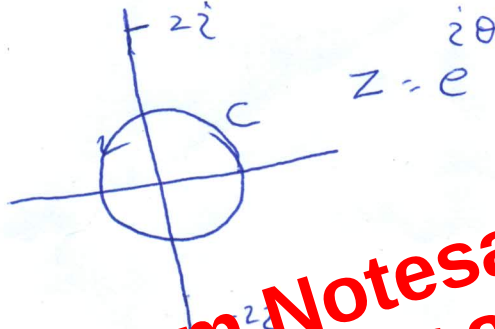
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Solution To Quiz#9

Q1: Use Cauchy's Integral Theorem to find the complex integration $\int_C \frac{dz}{z^2+4}$ where C is the unit circle $z(\theta) = e^{i\theta}$ (counterclockwise)

(5 marks)

Sol



Preview from Notesale.co.uk
Page 5 of 8

$z = \pm 2i$; but $z = \pm 2i$ lie outside the circle $z = e^{i\theta}$.

So, $f(z) = \frac{1}{z^2+4}$ is analytic inside C.

By Cauchy's Integral Theorem $\int_C \frac{dz}{z^2+4} = 0$