Problem Set 10 (§5.2.2–5.4.4)   Math 660

Due Monday, August 30, 2010   Jim Fowler

Remember to start reviewing for the final exam

The final examination is cumulative, so make sure that you start reviewing all the material in the course.

Different problems may be assigned!

This is probably not the final version! The problems assigned on this homework set are subject to change! The final version of Problem Set 10 will probably be ready by August 24, 2010.

Problem 1

Page 193, problem 1 in Ahlfors' *Complex Analysis.*

Problem 2

Page 193, problem 2 in Ahlfors' *Complex Analysis.*

Problem 3

Page 193, problem 5 in Ahlfors' *Complex Analysis.*

Problem 4

Derive various expansions.

Problem 5

Page 197, problem 1 in Ahlfors' *Complex Analysis.*

Problem 6

Page 197, problem 2 in Ahlfors' *Complex Analysis.*

Problem 7

Page 198, problem 3 in Ahlfors' *Complex Analysis.*

Problem 8

Page 198, problem 4 in Ahlfors' *Complex Analysis.*

Problem 9

Page 198, problem 5 in Ahlfors' *Complex Analysis.*

Problem 10

Obtain the representation

$$\Gamma(z) = \sum_{n=0}^{\infty} \frac{(-1)^n}{n!\,(z+n)} + \int_{t=1}^{\infty} t^{z-1} e^{-t}\,dt,$$

for every complex number z which is not a nonpositive integer.

Problem 11

Page 200, problem 2 in Ahlfors' *Complex Analysis.*

Problem 12

Page 200, problem 1 in Ahlfors' *Complex Analysis.*