PHY100B HW #7
Due Friday, 2/22/13 @ 5pm
Conformal mapping and Laplace's equation

Reading

Conformal Mappings: Read section 10 of Chapter 14 of Boas for this HW.

There are also many good web sites on conformal mapping, often including pictures and animations. The pictures convey a lot of information and are better than my drawings.

- Here's a basic overview with pictures (there are a lot of these just do a search on conformal mapping): http://mathews.ecs.fullerton.edu/fofz/cmaps.html
- This one lets you drop and drag corners of a square, but preserves angles http://mathsrv.ku-eichstaett.de/MGF/homes/grothman/java/demos/ComplexDemo_en.html
- This one lets you input a function, and shows how the map changes the space
  http://fermi.la.asu.edu/ccli/applets/confmap/index.html and
  http://fermi.la.asu.edu/ccli/applets/confmap/conform.html
- Here's a site which shows how the sphere can transform into an airfoil
  http://www.grc.nasa.gov/WWW/K-12/airplane/map.html

Fourier Transforms: We'll be discussing Fourier transforms in class this week. For that material, you should basically read chapter 7. However, we will also draw from chapter 3 and section 11 of chapter 8. I recommend that you read through all of this sometime this week so that you are very ready to start the Fourier Transforms homework next week, and so that you are well-prepared for the 2nd mid-term on March 4.

Problems

This is the last problem set on complex analysis from Chapter 14, though we will continue to use complex analysis in most of the rest of the course.

From Boas Chapter 14:

Section 10, page 716, Problems 6, 9, 12, 13.