

## WORKSHEET FOR 4/8/2009

**Reading assignment.** Section 11.6

**Homework due Friday.** 11.6: 4, 5, 8, 17, 30

**Exercises:**

- (1) Find the power series for  $\frac{1}{1-x}$ . (Hint: geometric series.) Explain.
- (2) Use your answer from number (1) to find the power series for  $\frac{1}{1+x}$ . Show your work.
- (3) Use your answer from number (2) to find the power series for  $\frac{1}{1+x^2}$ .
- (4) Integrate your answer from number (3) to find the power series for  $\arctan x$ . Find the interval of convergence. (Hint for the endpoints: alternating series).
- (5) Plug  $x = 1$  in to your answer from number (4) to find an infinite series for  $\pi/4$ .