Extra Credit 1

Due: Friday, January 18, 2014 at 11:59pm **Points:** 100

Please turn in your answers for the homework assignment on Canvas, under Extra Credit 1 in Assignments. Abraham Sharp developed an infinite sum that produces π:

$$\pi = \sum_{k=0}^{\infty} \frac{2(-1)^k 3^{\frac{1}{2}-k}}{2k+1}$$

1. (*20 points*) Compute and print the resulting approximations to π for the first 5, 10, ..., 50 terms. Each line of your output should look like this:

   ```
   After 5 terms, the approximation is 3.1426047456630846
   ```

   Your number may differ; this is intended to show you the format of the output only.

2. (*10 points*) After what term does adding extra terms stop improving the approximation?

Call your program "sharp.py", and put your answer to the second question in a comment at the beginning of the program.