CSC 135
Assignment #7
Point value: 20

Program due: Sec 1 Wed, Oct 18
Sec 2 Tues, Oct 17

There are many infinite series that can be used to approximate $\pi$. One such series is:

$$\pi^2/6 = 1/1^2 + 1/2^2 + 1/3^2 + 1/4^2 + \ldots$$

Write a C++ program that allows the user to approximate $\pi$ given the number of terms to be used. For example, if an input value of 100 is read, the program should use the first 100 terms of the series to compute an approximation of $\pi$. A message that states the number of terms used in the approximation and the approximated value (with 6 digits to the right of the decimal) should be printed. If the input value is zero or negative, the program should not attempt to find an approximation, it should print an appropriate error message.

This is the first program that will be run in batch mode. The data to test the program will be in ~lee/csc135fall00/hw7data. The file will contain a series of integers, one per line. The first integer will indicate how many values follow. The remaining values will indicate the number of terms to use for each approximation.

You **MUST** use file redirection to get the program to read from the file. Do not use file streams for this assignment.

1. copy the data file into your account
2. compile your program as we have always done
3. execute your program with: a.out < hw7data
   the output will automatically go to the screen
   if you want your output (for testing) to go to a file then execute with:
   a.out < hw7data > outputfile

NOTE: Do not forget to display the contents of the data file as part of the shell file you create to hand in.

Remember to document your program. Use meaningful variable names. Format the code for easy readability.