This assignment makes you think about numbers. A tar file has been provided in hw04.tar.gz. Download and un-tar this file with the command "tar -xvzf hw04.tar.gz" to create the hw04 sub-directory that starts with only a Makefile (so that everyone gets a make submit that makes sense). The Makefile assumes you will create C code in a file called "numLetters.c". For this assignment, you will need to write numLetters.c from scratch.

The numLetters C program should take a single command line argument that describes a number between zero and 1,000,000,000 (one billion). The program needs to calculate the number of letters required to write the number using English words. For instance, if you invoke your program as "./numLetters 3", it should print the result: "3 takes 5 letters". To write the number 3 in English, you need to write the word "three", which takes five letters. Do not count spaces, hyphens, the word "and", or any other punctuation. For instance, "./numLetters 342" should count the letters in "three hundred forty-two", and get a result of 20 letters (the number of letters in "threehundredfortytwo".) Your program should end with a printf statement that uses the format "%d takes %d letters\n", where the first %d gets the number itself, and the second %d gets the number of letters required to print the first number. If your program is invoked as "./numLetters 115", it should print "115 takes 17 letters".

When you are done testing, run "make submit" to create a file called "hw04_<*userid*>.tar.gz", where <*userid*> is your gmail userid. Upload this file on myCourses under Content, Homework Submissions, Homework 02 Submission. This assignment is due at 11:59 PM on Sunday, February 19, 2017. You may submit as many times as you wish; but only the latest submission will be graded.

This assignment is worth 10 points. Your grade will be calculated as follows:

- If you submit late without an extension, there will be a two-point deduction for every 24 hours you are late. Extensions are available only in special circumstances, and can only be given by the instructor or a TA.
- There will be a three-point deduction for submissions that do not follow the required format. For instance, if you do not run make submit to create the correct tar file, or if you run make submit on a machine where your userid is incorrect so that the resulting tar file has the wrong name OR wrong contents (your userid is used to create a sub directory that is contained in the tar file).
- There will be a six-point deduction if there are compiler errors when compiling your code.
- There will be a three-point deduction if your code does not run to completion on any of the test cases used to grade your code. For instance, if your code causes a segmentation violation, there will be a three-point deduction.
- There will be a two-point deduction for each class of compiler warning message issued when compiling your code.
- There will be a two-point deduction if numLetters does not print the correct results for the test cases in the Makefile test, and a one-point deduction for each of four unpublished test cases on numLetters.