Name: Student Number:

KEY NUMBER:

Solving Problems using Programming
Second Partial Examination
Tuesday, April 5, 2015

If you have any questions, please raise your hand and wait for the professor to address your question.
The answers come from YOUR memory and ideas. Any cases of cheating during the exam will result in confiscation of your exam, your dismissal from the examination room and an investigation of “Academic Dishonesty”.

If you finish the exam, please hand ensure your name is on this page and as comments in your code and then deliver the exam to the professor and leave QUIETLY. Please do not talk loudly outside the classrooms in respect for other students in your class and other classes.

You must sign this exam to indicate your agreement with the above statements. (-1 for not signing)

Signature(Firma)_____

Each question should be in a separate file. I suggest q1.cpp, q2.cpp, q3.cpp, q4.cpp

```
// comment with your name/student#
#include <iostream>
using namespace std;
int main(){
   return 0;
}
```

5 points of each question.
Write c++ code for the following. For full points, you **MUST** write a function as it requests in addition to the main function (see above). Please put your name/student# in your code as comments.

C++ Manual available at http://ken.baueralonso.com/cppref/en

1. Write a function called triangles which receives a single parameter (int) which represents the size of a triangle as explained below. The function should print a triangle using loops (for or while). The only characters printed here are 'T' and the new-line character. The first line is length one, the middle line is length size and the last line is length one. The example below is for size 6.

   T
   TT
   TTT
   TTTT
   TTTTT
   TTTTTT
   TTTTTT
   TTTTT
   TTTT
   TTT
   TT
   T

2. Write a function called superpower that has two parameters of type long and returns a long which is first parameter raised to the power of the second, which is to say it returns a^b
   So, superpower(3,4) would return 81.

   ```
   long superpower(long a, long b){

   }
   ```

3. NOTE: for full 5 points, use a loop (not recursion).
   Write a function called fibonacci which receives a long "n" and returns a long which is the value of the nth number in the fibonacci series which is: 0,1,1,2,3,5,8,13,21,34,55,89.....
   So, fibonacci(0) would return 0. fibonacci(5) would return 5, fibonacci(8) would return 21.
   Note that the first two fibonacci numbers are 0 and 1.
   All others are the sum of the previous two fibonacci numbers.

4. Write a function called isPalindrome which receives a string "x" and returns true if the string x is a palindrome, otherwise false.