Homework 5

1. Write a function integerPower(base, exponent) that returns the value of $base^{exponent}$ For example, integerPower(3, 4) = 3 * 3 * 3 * 3. Assume that exponent is a positive, nonzero integer, and base is an integer. Function integerPower should use for to control the calculation. Do not use any math library functions.

2. Write a function that takes the time as three integer arguments (for hours, minutes, and seconds), and returns the number of seconds since the last time the clock "struck 12." Use this function to calculate the amount of time in seconds between two times, both of which are within one 12-hour cycle of the clock.

3. Write function distance that calculates the distance between two points *(x1, y1)* and *(x2, y2)*. All numbers and return values should be of type double.

4. The Fibonacci sequence is a sequence of numbers such that the first and second numbers are 0 and 1 respectively, and each number after the second is the sum of its two predecessors. Design a recursive function that take a positive value of N as input, and outputs the first N elements of the Fibonacci series.