CS110 – Spring 2012
Problem Set 5   (Due Tuesday 4/10 in class, bring hard copy)

Name: _____

1) (20 pts) Write a recursive function `int power(int n, int i)` that takes two integer arguments named `n` and `i`. The function should return the ith power of `n`.

2) (20 pts) Write a recursive function `boolean palindrome(String str)` that takes a String argument `str` and returns `true` if `str` is a palindrome and `false` otherwise.

3) (15 pts) Declare and create a 4-dimensional array of floats named `numbers` and fill it with randomly generated values.

4) (10 pts) Modify your answer to 3) so that the array `numbers` is created as a ragged 4-dimensional array instead. Only the last dimension needs to be ragged. Use random integers for the lengths of the ragged rows.

5) (15 pts) Modify your answer to 4) so that the array `numbers` is created as a ragged 4-dimensional array, and all dimensions are ragged. Use random integers for the lengths of all rows.

6) (20 pts) Write a function `PImage select(int x, int y, int s)` which takes an x and a y screen coordinate and returns an image that is s by s in size and contains the pixels that make up the s by s neighborhood around `(x, y)`. For example, `select(mouseX, mouseY, 10)` will return a 10 by 10 pixel region that surrounds the current mouse location.