CSCI 182 Fall 2017, Test 3
Wednesday, 15 November, 2017

Directions: Please read carefully and answer each problem on the test. They may be printed on both sides of the page. You may use **the Processing program**, **Processing reference**, anything on our CSCI 182 course webpage, your notes, and the textbook. You cannot earn credit for the Write Code problem without submitting a completed paper test. You can earn up to 100 points.

Answer the following 12 questions – 5 points each.
Just to make things a tad less confusing a big underline has been provided for each answer.

Which numeric type can hold the largest number?

_____

What type should be used to store the name of a UNC Asheville class?

_____

Write a Processing statement that assigns, to the *integer* variable, `roll`, a random number between 1 and 6. (You can assume `roll` has already been declared.)

_____

Write an appropriate header for the following one-line function, with a parameter `n`, in the blank line:

```
_____________________________________________________________ {
   return (int)sqrt(n) ;
}
```

What is the value of `x` after the following expression is executed?

```
float x = 13/6 ;
```

_____

Assuming that the variable courseName has been initialized as follows:

```
String courseName = ”CSCI 182” ;
```

What is the value of the following Processing expressions?

```
courseName.charAt(2)
```

_____

```
courseName.indexOf('2')
```

_____

Why does the following Processing statement print a line containing `07`?

```
println(”0” + 7) ;
```

Why does the following Processing statement print a line containing `55`?

```
println('0' + 7) ;
```

Fill in the test of the following function so that the variable `numPlus` will be equal to the number of times the character `'+'` has been pressed while a Processing program is running.

```
int numPlus = 0 ;
void keyPressed() {

    if (_____________________________________________) {
        ++numPlus ;
    }
}
```

Fill in the test of the following function so that the variable `numUpArrow` will be equal to the number of times the up arrow (↑) key has been pressed while a Processing program is running.

```
int numUpArrow = 0 ;
void keyPressed() {

    if (_____________________________________________) {
        ++numUpArrow ;
    }
}
```

Fill in the blank of the following function so that the variable `numLeftPress` will be equal to the number of times the left mouse button has been pressed while a Processing program is running.

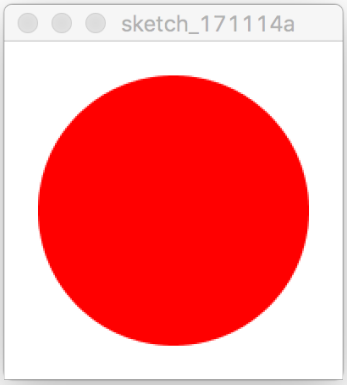
```
int numLeftPress = 0 ;
void mousePressed() {

    if (_____________________________________________) {
        ++numLeftPress ;
    }
}
```

Write Code: You may use a lab computer or your own laptop. Save your answer(s) in a single `.pde` file , then upload that `.pde` file to the course moodle page. As a reminder, you may use the Processing program, anything on our CSCI 182 course moodle, your notes, and the textbook. (1 problem. 40 points.)

Write a program that *initially* displays a window, of size 200 by 200 pixels, that has a white background containing a large red circle of radius of 80 pixels (and consequently, with width 160 pixels), similar to what is shown below. (14 points)

(If the circle is black, that's to save $4 in printing charges.)



Once the program is running, two things happen concurrently.

- The radius of the circle decreases by one pixel each second. (13 points)
- When the mouse is pressed within the circle, that color of the circle alternates between red and green, that is, a red circle changes to green and a green circle changes to red (13 points)