Problem Set 1
CS110 Fall 2015

1) (10) Write an expression that draws an ellipse with width 100 and height 50 and a center point that matches the center point of the sketch window, irrespective of the size of the sketch window.

2) (10) Write three statements that could be used to replace a the statement background(127). Hint, use the rect() function as one of your three statements.

3) (10) Write expressions that draw a red rectangle that covers the upper left quadrant, green rectangle that covers the upper right quadrant, blue rectangle that covers the lower left quadrant and white rectangle that covers the lower right quadrant of the sketch window, irrespective of the size of the sketch window.

4) (15) Modify your above answer to 3) to draw the four rectangles with a cross-shaped overlap in the center with blended color - see picture. The size of the overlap should also be proportional to sketch width and height, say 1/10 of width in the x direction and 1/10 of height in the y direction. Use variables, don't hard-code.
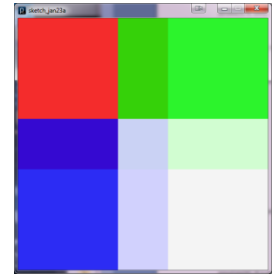
5) (15) Given the following variable definitions, what value and type do the following expressions evaluate to? If you show your work process clearly, partials may be assigned.

```
int a = 2, b = 5;
float x = 2.0;
double y = 10.0;

a) y * (b - a)
b) 10%b + x
c) b / a * x
```

6) (15) Write statements that will change the background to a random color if the current **mouseX** and **mouseY** are in the bottom left quadrant of the sketch window, and do nothing otherwise.

7) (25) Write function that takes an integer **n** and returns true if **n** is prime and false otherwise.