APCS Lab 6 – Intro to Graphics

Graphics can be generated using the Java graphics library.

Documentation is at:
http://docs.oracle.com/javase/7/docs/api/java/awt/Graphics.html

More documentation at:
http://docs.oracle.com/javase/tutorial/2d/basic2d/

Here is the code for a sample .java file called graph_ex1.java

```
import javax.swing.JFrame;
import javax.swing.JPanel;
import java.awt.Graphics;
import java.awt.Color;

public class Example1 extends JPanel
{
     public void paint(Graphics g)
     {
          int w=500;
          int h=500;
          setSize(w,h);
          g.setColor(Color.WHITE);
          g.fillRect(0,0,w,h);
          g.setColor(Color.RED);
      g.drawString("Here are a selection of blank
shapes.",20,40);
     g.drawLine(20,40,200,40);
     g.setColor(Color.blue);
     g.drawLine(20,50,70,90);
     g.setColor(Color.red);
     g.drawRect(100,50,32,55);
     g.setColor(Color.green);
     g.drawOval(150,46,60,60);
     g.setColor(Color.magenta);
     g.drawArc(230,50,65,50,30,270);
     g.setColor(Color.black);
     g.drawString("Here are the filled
equivalents.",20,140);
     g.drawLine(20,140,200,140);
     g.setColor(Color.yellow);
     g.fillRect(100,150,32,55);
     g.setColor(Color.pink);
     g.fillOval(150,146,60,60);
     g.setColor(Color.darkGray);
```

```
        g.fillArc(230,150,65,50,30,270);
        }

        public static void main (String[] args)
        {
             JFrame window = new JFrame();
             window.setSize(600,600);
             window.setTitle("Jframe Window");

        window.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
             Example1 Ex1Panel = new Example1();
             window.add(Ex1Panel);
             window.setVisible(true);
        }
}
```

You should see a window open and the graphics appear in the window.

80% level:

Exercise 1
Display a red circle with center at (100,100) and radius 50.

Exercise 2
Display a vertical blue line

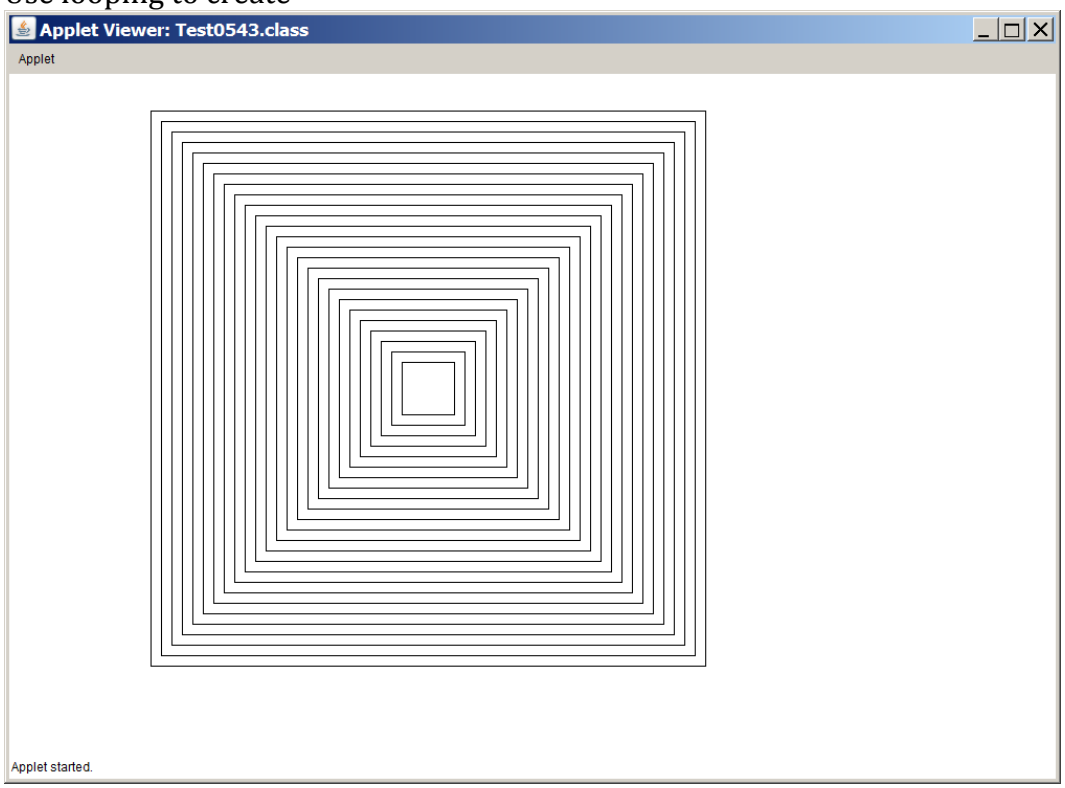
Exercise 3
Use a “for loop” to display 10 vertical lines equally spaced

Exercise 4
Use loops to display 10 vertical and 10 horizontal lines equally spaced, like graph paper.

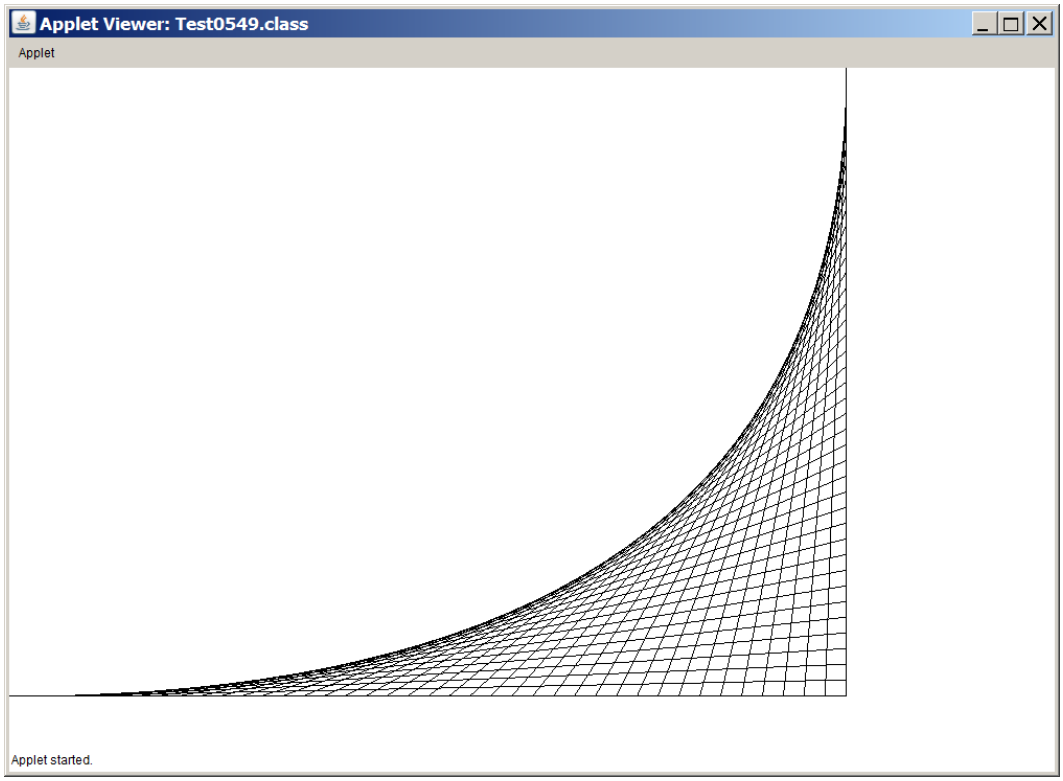
Exercise 5
Use a loop to display 10 circles with random center, random radius and oe of 8 random colors of your choice.

90% level

Exercise 6
Use looping to create



Exercise 7
Use looping to create



100% level

Exercise 8
Use looping to create the same pattern as exercise 7, but in all 4 corners.

Exercise 9
Toss a pair of regular dice and keep track of the sums (how many 2's, how many 3's, … , how many 12's). Use graphics to display the distribution of the sums as a bar graph.