Quiz 4

1. How many bytes are needed to store a color picture that is 1000 pixels wide and 2000 pixels high? Assume color is represented using the RGB technique and that no special compression technique is used. Express your answer as approximate number of KB or MB, as appropriate. Show your work.

2. Two corners of a square drawn using the Java coordinate system have coordinates (10, 20) and (30, 40). What are the coordinates of the other two corners?

3. Given the following declarations:

   ```
   int iResult, num1 = 7, num2 = 3;
   double fResult, val1 = 8.0;
   boolean status, part1 = false;
   ```

   Show the results if the following assignment statements are executed (or write “ERROR” if the statement causes an error).

   • The resulting value of the expression that will be stored in the variable and its type
   • The kind of data conversion, i.e., one of the following:
     o none (no data conversion of any kind)
     o automatic (through assignment or mixed type expression)
     o cast (specify whether widening or narrowing)
   • Note that there may be none or more than one conversion – be sure to list all, if any

<table>
<thead>
<tr>
<th>Source code</th>
<th>value stored in variable</th>
<th>Type of value</th>
<th>Data Conversion(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>iResult = val1;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fResult = num1 / num2;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iResult = (int) val1 / num2;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fResult = (double)(num1 / num2);</td>
<td></td>
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<td></td>
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4. Using the coordinate system below representing the graphics area of an applet, draw the graphics displayed by the applet, identifying positions MID and TOP (in terms of their use in the applet), and the shapes RECTANGLE, OVAL, LINE.

```java
import javax.swing.JApplet;
import java.awt.*;

public class Quiz4 extends JApplet {
    // Draws something...
    public void paint (Graphics page) {
        final int MID = 40; // MID
        final int TOP = 20; // TOP
        page.drawOval (MID-10, TOP-20, 20,40); // OVAL
        page.drawRect (0, 0, 30, 40); // RECTANGLE
        page.drawLine (0, 60, 100, 60); // LINE
    }
}
```

//************************************
// Quiz4.java Author: MAP
//************************************
Quiz 4

Name:_____________________________________

1. How many bytes are needed to store a color picture that is 3000 pixels wide and 2000 pixels high? Assume color is represented using the RGB technique and that no special compression technique is used. Express your answer as approximate number of KB or MB, as appropriate. Show your work.

2. Assuming you have a Graphics object called page, write statements to draw a square with side = 75 pixels at the top left corner of the page.

3. Given the following declarations:

   int iResult, num1= 7, num2 = 3;
   double fResult, val1 = 8.0;
   boolean status, part1= false;

Show the results if the following assignment statements are executed (or write “ERROR” if the statement causes an error).

   • The resulting value of the expression that will be stored in the variable and its type
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```java
import javax.swing.JApplet;
import java.awt.*;

public class Quiz4 extends JApplet {
    public void paint(Graphics page) {
        final int MID = 40;  // MID
        final int TOP = 20;  // TOP

        page.drawOval(-20, -20, 40, 40);  // OVAL
        page.drawRect(MID, TOP, 20, 40);   // RECTANGLE
        page.drawLine(0, 40, 20, 0);       // LINE
    }
}
```

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CSC1051 Data Structures and Algorithms I          Dr. Papalaskari          Fall 2013
BE SURE TO INCLUDE PHOTOCOPY of page 100 of text (graphics methods). I have saved some of these so they don’t need to be copied every semester.