Quiz 5

Name:______________________________

1. Answer the questions referring to the program below.

a) Give an example of a constructor being used to instantiate an object. Write the line of code here and underline it in the program below:

b) How many panels are created? _______ Which of them can be considered subpanels of other panels? ________________

c) What is the Java class that is used to display the string "A New Pope!"? ______ 
and the name of the object created by this program to display it? _______

d) Draw a picture that depicts the GUI for this program. Be sure to label everything (p1, p2, p3, label1, label2, label3), colors used (use an arrow to point at a region and write its color); draw approximately to scale, but don’t worry too much about placement (I am looking for the logical structure, rather than exact layout). You don’t have to draw a picture of the Pope!

```java
import java.awt.*;
import javax.swing.*;
public class Quiz5
{
    public static void main (String[] args)
    {
        JFrame frame = new JFrame ("Good News");

        JPanel p1 = new JPanel();
        p1.setBackground (Color.yellow);

        JPanel p2 = new JPanel();
        p2.setBackground (Color.blue);
        JLabel label1 = new JLabel ("A New Pope!");

        JPanel p3 = new JPanel();
        p3.setBackground (Color.red);
        JLabel label2 = new JLabel ("The World Rejoices");
        ImageIcon pic = new ImageIcon ("francis.jpeg");
        JLabel label3 = new JLabel ("Pope Francis", pic, SwingConstants.RIGHT);

        p2.add (label1);
        p3.add (label2);
        p3.add (label3);
        p1.add (p2);
        p1.add (p3);
        frame.getContentPane().add(p1);
        frame.pack();
        frame.setVisible(true);
    }
}
```
2. Suppose you have the following driver class that uses the Account class:

```java
import java.text.NumberFormat;

public class Transactions {
    public static void main (String[] args)
    {
        Account acct1 = new Account ("Liz Lemon", 72354, 100.00);
        Account acct2 = new Account ("Jenna Maroney", 69713, 50.00);

        System.out.println (acct1);
        System.out.println (acct2);

        System.out.println ();
        System.out.println (acct1);
        System.out.println (acct2);
    }
}
```

a) What method of the Account class is being invoked in a statement such as:

```java
System.out.println (acct1);
```

b) Insert some code in the space above (between the series of print statements) to withdraw $25 from acct1 and deposit it in acct2.
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import java.awt.*;
import javax.swing.*;
public class Quiz5
{
    public static void main (String[] args)
    {
        JFrame frame = new JFrame ("The World Rejoices");

        JPanel p1 = new JPanel();
        p1.setBackground (Color.yellow);

        JPanel p2 = new JPanel();
        p2.setBackground (Color.blue);
        JLabel label1 = new JLabel ("Good News");
        JLabel label2 = new JLabel ("A New Pope!");

        JPanel p3 = new JPanel();
        p3.setBackground (Color.red);
        ImageIcon pic = new ImageIcon ("francis.jpeg");
        JLabel label3 = new JLabel ("Pope Francis", pic, SwingConstants.RIGHT);

        p2.add (label1);
        p2.add (label2);
        p3.add (label3);
        p1.add (p2);
        p1.add (p3);
        frame.getContentPane().add(p1);
        frame.pack();
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    }
}
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2. Suppose you have the following driver class that uses the Account class:

```java
public class Transactions {
    public static void main (String[] args) {
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        System.out.println (acct1);
        System.out.println (acct2);

        System.out.println ();
        System.out.println (acct1);
        System.out.println (acct2);
    }
}
```

a) What method of the Account class is being invoked in a statement such as:
System.out.println (acct1);

b) Insert some code in the space above (between the series of print statements) to withdraw $25 from acct1 and deposit it in acct2.

Account class (For reference)

```java
import java.text.NumberFormat;

public class Account {
    final double RATE = 0.035;  // interest rate of 3.5%
    long acctNumber;
    double balance;
    String name;

    // Sets up the account by defining its owner, account number,
    // and initial balance.
    public Account (String owner, long account, double initial) {
        name = owner;
        acctNumber = account;
        balance = initial;
    }

    // Deposits the specified amount into the account. Returns the
    // new balance.
    public void deposit (double amount) {
        balance = balance + amount;
    }

    // Withdraws the specified amount from the account and applies
    // the fee. Returns the new balance.
    public void withdraw (double amount, double fee) {
        balance = balance - amount - fee;
    }

    // Adds interest to the account and returns the new balance.
    public void addInterest () {
        balance += (balance * RATE);
    }

    // Returns the current balance of the account.
    public double getBalance () {
        return balance;
    }

    // Returns a one-line description of the account as a string.
    public String toString () {
        NumberFormat fmt = NumberFormat.getCurrencyInstance();
        return (acctNumber + "\t" + name + "\t" + fmt.format(balance));
    }
}
```