Sample Exam 1 (100 points)

Answer each question in the space provided. Point values are listed next to each question number. You may use your textbook and class notes while taking this exam.

1. Fill in the values for each variable, then show the output from the following program in the space provided:

```
public class Interp {
  public static void main (String [] args) {
    String name = new String("Cate Sheller");
    String app = new String("ay");
    int space = name.indexOf(" ");

    char first = name.charAt(0);
    char second = name.charAt(space + 1);

   System.out.println(name.substring(1,space) +
                      " " + first + app);

    System.out.println(
    name.substring((space+2), name.length()) + " "
                     + second + app);

    System.out.println(name);
    System.out.println(app + app + app);
    System.out.println("" + first + second);
  }
}
```

Variable values:

name:

app:

space:

first:

second:

Output:

2. Give the ***result*** and ***data type*** of each expression below:
   a. 2 + 9 * 2

   b. 18 % 4

   c. (double) (2/3)

   d. 3.0 / 2

   e. 1 + 1/3 + 1/5 + 1/7

3. Place the lines of code in the program below in the correct order to produce the following output:

Happy birthday to you
Happy birthday to you
Happy birthday dear Nancy
Happy birthday to you

Note: More than one correct ordering is possible

	String other = new String ("to you");
	public class Birthday {
	final char SPACE = ' ';
	other = new String (" to you");
	} // end of class
	System.out.println(DAY + SPACE + other + SPACE + NAME);
	System.out.println(DAY + SPACE + other + '\n' + DAY + SPACE + other);
	public static void main (String [] args) {
	final String DAY = "Happy birthday";
	System.out.println(DAY + other);
	other = new String ("dear");
	} // end of main
	final String NAME = "Nancy";

4. Examine the following program for syntax errors. If the line contains an error, write a correction in the space to the right; otherwise, write "no error" in the space.

`import java.util;`	
`publicclass Errors {`	
`public static void man (String [] args) {`	
`Random r = Random();`	
`int x = r;`	
`System.out.println("x=" x);`	
`System.out.println('aardvark');`	
`System.out.println("wombat")`	
`System.out.println("????");`	
`}`	
`)`	

5. (10 points) Suppose you have a class named Joe in the java.bro library. Joe contains several methods, including the three listed below. Answer question a through e based on this information:

   int salute (String s, int n)
   static int hasbro()
   void muffin (int weasel)

   a. Which method or methods must be called from an object?
   b. Write a declaration for the object you would need:
   c. Which method or methods does (or do) ***not*** return a value?
   d. Write an import statement so that you can access Joe code in your program
   e. What kind of argument or arguments should be passed to a call to salute?

6. Show the output of the following code fragment using the grid given below:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Code:

```
double num = 3.087439;
System.out.printf("Value is %7.2f\n", num);
System.out.printf("%8s\n%8.4f\n", "Value", num);
System.out.printf("%5s\n", "Tra");
System.out.printf("%10s\n", "La");
System.out.printf("%15s\n", "La");
```

7. Write a program that finds and prints out the volume of a sphere given the following formula:

   Volume = $\frac{4}{3}\pi r^3$

   where r is the radius of the sphere – this can be either an int or a double, and should be read in from the keyboard. An example run of the program (with sample user input – do not assume your program will use this particular value) is shown below:

```
Enter radius of sphere: 5
A sphere with radius 5 has volume 523.5987755982989
```