Name _____ Period_____

1. Refer to the code below to answer the following,

```
public class TvShow
{

   public String actor1 = "Don Knots";
   public static String actor2 = "Homer Simpson";
   public static int numShows = 0;
   public static int x = 59;
   public int y = 1059;
   public String showName;


   public TvShow(String nm)
   {
         numShows++;
         showName = nm
   }

   public static int numberOfShows()
   {
         return numShows;
   }

   public void setActor1(String act1)
   {
         actor1 = act1
   }
}
```

(a) Indicate whether each of the following are legal or illegal. If the statement is illegal, indicate why.

(i) Suppose the code inside the numberOfShows method is replaced with the following line:

return y;

illegal; this is a static method and cannot return a static variable

(ii) TvShow.setActor1("Jimmy Stewart");

illegal; setActor1 is not a static method. An object declaration is required to access this method.

(b) Write code that will print the data member actor2. Do this without instantiating any objects.

System.out.println(TvShow.actor2);

(c) Create an instance of TvShow called chrs (pass in the String "Cheers") and use it to access and print the class variable numShows.

```
TvShow chrs = new TvShow("Cheers");
System.out.print(chrs.numberOfSnows());
```

(d) Give the output of the following:

```
System.out.println(TvShow.x);
```

59

/5

2. The "Box" class below creates boxes of different volumes and surface areas depending on the value of the variable "sideLength".

(a) Create three static instance variables of type double called "sideLength", "volume", "surfaceArea" (1 point)
(b) Write a method called "getVolume", calculates the volume of the box, assigns the value to "volume", and returns the value as a double. (2 points)
(c) Write a method called "getSurfaceArea" that calculates the surface area of the box, assigns the value to surfaceArea, and returns the value as a double. (2 points)
(d) Write a method called "getResults" that returns the String "The volume of the box is *indicate the volume* and the surface area is *indicate the surface area"*. (2 points)

```
public class Box{

        static double sideLength, volume, surfaceArea;

        public static double getVolume(){

            volume = sideLenght*sideLength*sideLength;
          return volume;
        }

        public static double getSurfaceArea(){

            surfaceArea = sideLenght*sideLength*6;

          return surfaceArea;
        }

        public static String getResults(){

            return "The volume of the box is " + volume + " and the surface area is " +
surfaceArea;
        }
}
```

/7

Score _____/22

3. In the driver class below,

(a) Set the static variable, sideLength, to 10.
(b) Call the method that calculates the volume of the box
(c) Call the method that calculates the surface area of the box
(d) Write one line of code that prints the results to the console using the appropriate method from the Box class.

```
public class boxDriver{

    public static void main(String[] args){

        Box.sideLength = 10;
        Box.getVolume();
        Box.getSurfaceArea();
        System.out.println(Box.getResults());



}
```

/4

4. Refer to the following code:

```
public class Tester {

    public static void main(String[] args)
    {
        double b[] = new double[10];
        b[3] = 19;
        BankAccount myAccount = new BankAccount(79); //sets balance to 79
        int y = 39;
        method1(y, b, myAccount);
        System.out.println(y + " " + b[3] + " " + myAccount.balance); //What is printed

    }

    public static void method1(int x, double a[], BankAccount theAccount){

        x = 332;
        a[3] = -54;
        theAccount.balance = 702;
    }

}
```

(a) What is printed when the code above is executed?

39, -54, 702

/2

Score _____/22

5. Refer to the following code:

```
public class Tester
{
   public static void main(String args[])
   {
   int s[] = {1,2,3,4,5,6};

   for(int g = 0; g < s.length; g++)
      System.out.print(s[g] + " ");

   System.out.print("\n");
   testMethod(s);

   for(int g = 0; g < s.length; g++)
      System.out.print(s[g] + " ");
   }//end main

   public static void testMethod(int pp[])
   {
   int len = pp.length;
   int t2[] = new int[len];

   for(int j=0; j<len; j++)
      t2[j] = pp[len -j -1];

   for(int k=0; k<t2.length; k++)
      System.out.print(t2[k] + " ");

   System.out.print("\n");
   pp = t2;
   }//endt testMethod
} //end Tester
```

(a) What is printed when the code above is executed?

1 2 3 4 5 6
6 5 4 3 2 1
1 2 3 4 5 6

/2

Score _____/22

6. Refer to the following code:

```
public class Tester
{
    public static void main(String args[])
    {
        int [] prf = {13,22,89,15};
        double d = 30.89;
        Circle myCir = new Circle(18);
        myCir.rad = 14;
        fg(prf, d, myCir);

        System.out.println(d);
        System.out.println(prf[2]);
        System.out.println(myCir.rad);
    }

     public static void fg(int [] x, double d, Circle c)
     {
        d++;
        x[2] = 16;
        c.rad = 122;
        System.out.println(d++);

        /*int nn[] = new int[x.length];
        nn[3] = x[0];
        x = nn; */
     }
}
```

(a) What is the output of
System.out.println(d); in *main*?

30.89

(b) What is the output of
System.out.println(prf[2]); in *main*?

16

(c) What is the output of
System.out.println(myCir.rad); in *main?*

122

(d) What is the output of *println* in the *fg* method?

31.89

/4

Score _____/22