**Circle**

**Directions:** Create the instance variables, public variables, constructors, methods, and static methods described below:

**Public Variables:**

* A static, final variable *PI* set to the value of 3.141592

**Private Variables:**

* A static, integer variable *count* set to the value of 0
* A double variable for the radius of the circle

**Constructors:**

* *Circle()* – initializes *radius* to 0
* *Circle(4*.0) – initializes *radius* to 4.0

**Non-static methods:**

* *area()*
* *circumference()*
* *diameter()*
* *toString()*

Circle:

Radius = 4.0

Diameter = 8.0

Area = 50.265472

Circumference = 25.132736

**Static Methods**

* *getNumCircles()* – returns total number of instantiated circles, an integer, since last reset
* *resetCount()* – void method that sets the static count variable to 0
* *area(double radius)*
* *circumference(double radius)*
* *diameter(double radius)*

**Mystery (static or non-static)** – in order for the *round* method below to be used in ALL of the methods above, should it be created as a static or non-static method?

* *round(double input)*

**CircleMain**

**Directions:**

1. Instantiate a new Circle, c1, using the default constructor
2. Instantiate a new Circle, c2, with a radius of 3.
3. Print the number of circles that have been instantiated since the last reset.
4. Reset the Circle Instantiate Count to 0.
5. Instantiate a new Circle, c3, with a radius of 4.
6. Print the number of circles that have been instantiated since the last reset.
7. Print c3.
8. Print the value of the public variable PI from the Circle Class.
9. Print the area of a circle that has a radius of 127
10. Print the circumference of a circle that has a radius of 2143

**Correct Printout:**

# of Circles: 2

# of Circles: 1

Circle:

Radius = 4.0

Diameter = 8.0

Area = 50.265

Circumference = 25.133

PI = 3.141592

Circle with radius 127 has area of: 50670.737

Circle with radius of 2143 has circumference of: 13464.863