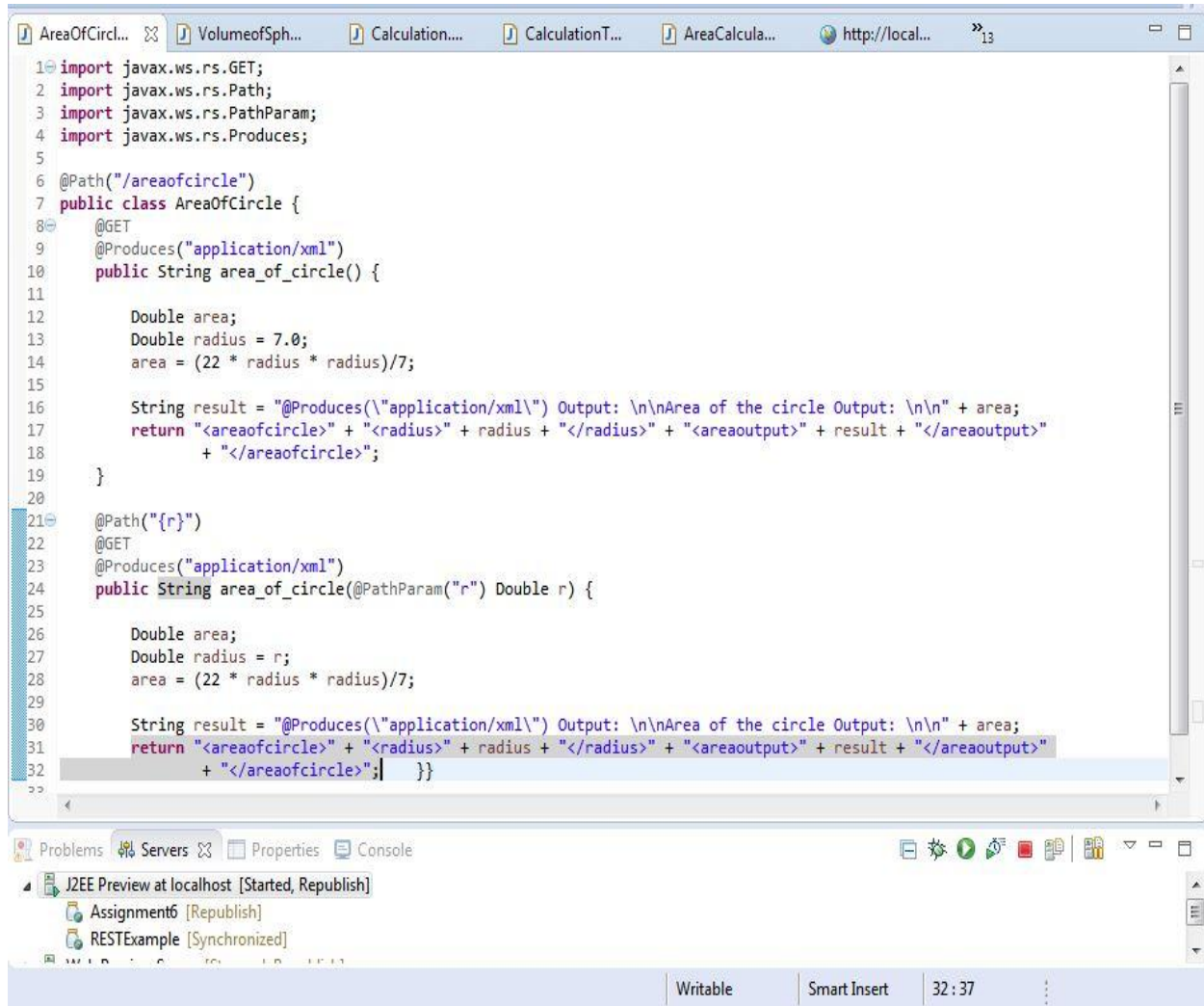


## ASSIGNMENT 6

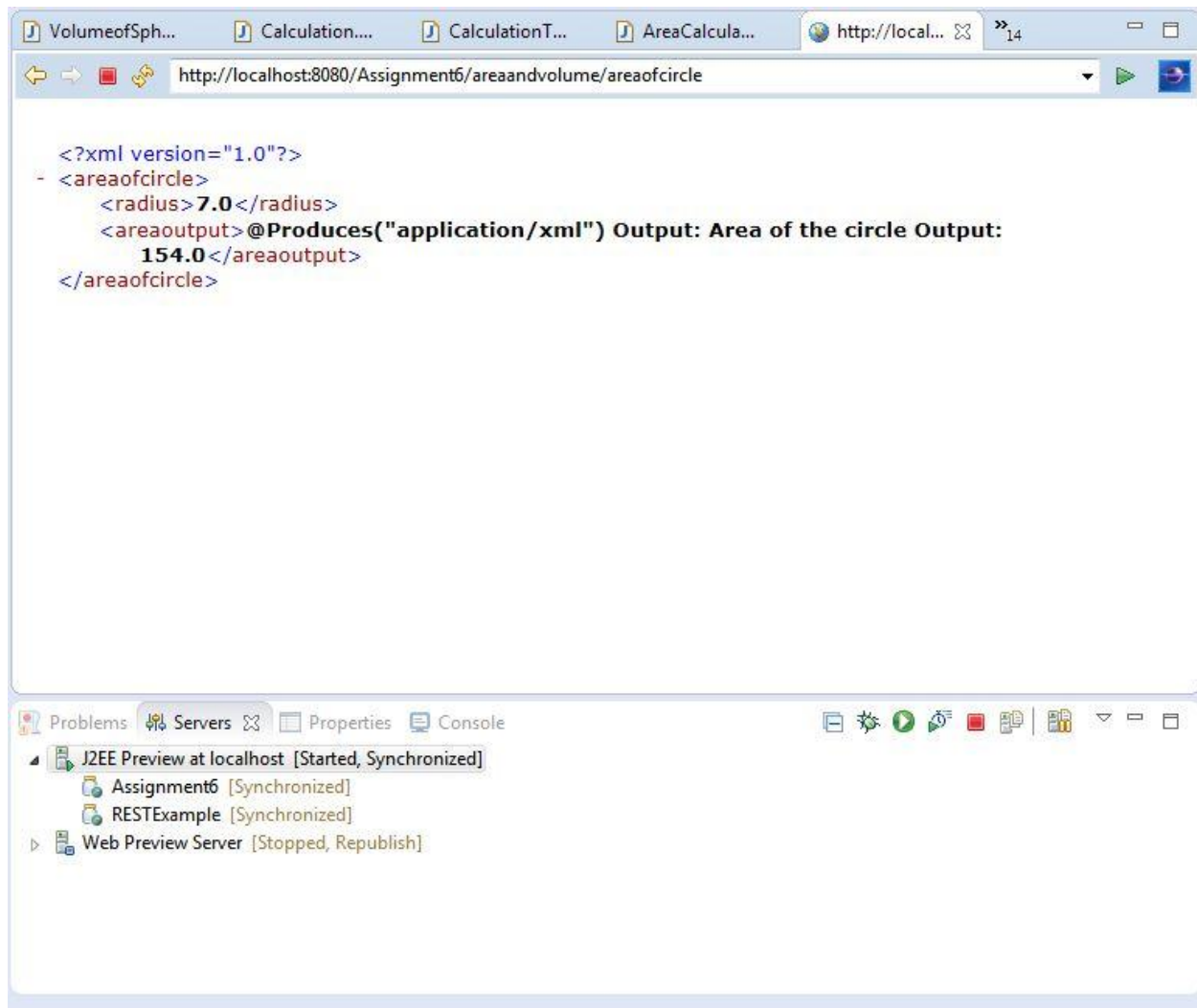
Rest Service for Area of a Circle:

Code:



```
1 import javax.ws.rs.GET;
2 import javax.ws.rs.Path;
3 import javax.ws.rs.PathParam;
4 import javax.ws.rs.Produces;
5
6 @Path("/areaofcircle")
7 public class AreaOfCircle {
8     @GET
9     @Produces("application/xml")
10    public String area_of_circle() {
11
12        Double area;
13        Double radius = 7.0;
14        area = (22 * radius * radius)/7;
15
16        String result = "@Produces(\"application/xml\") Output: \n\nArea of the circle Output: \n\n" + area;
17        return "<areaofcircle>\" + "<radius>\" + radius + "</radius>\" + "<areaoutput>\" + result + "</areaoutput>\"
18            + "</areaofcircle>";
19    }
20
21    @Path("/{r}")
22    @GET
23    @Produces("application/xml")
24    public String area_of_circle(@PathParam("r") Double r) {
25
26        Double area;
27        Double radius = r;
28        area = (22 * radius * radius)/7;
29
30        String result = "@Produces(\"application/xml\") Output: \n\nArea of the circle Output: \n\n" + area;
31        return "<areaofcircle>\" + "<radius>\" + radius + "</radius>\" + "<areaoutput>\" + result + "</areaoutput>\"
32            + "</areaofcircle>\";|    }}"
```

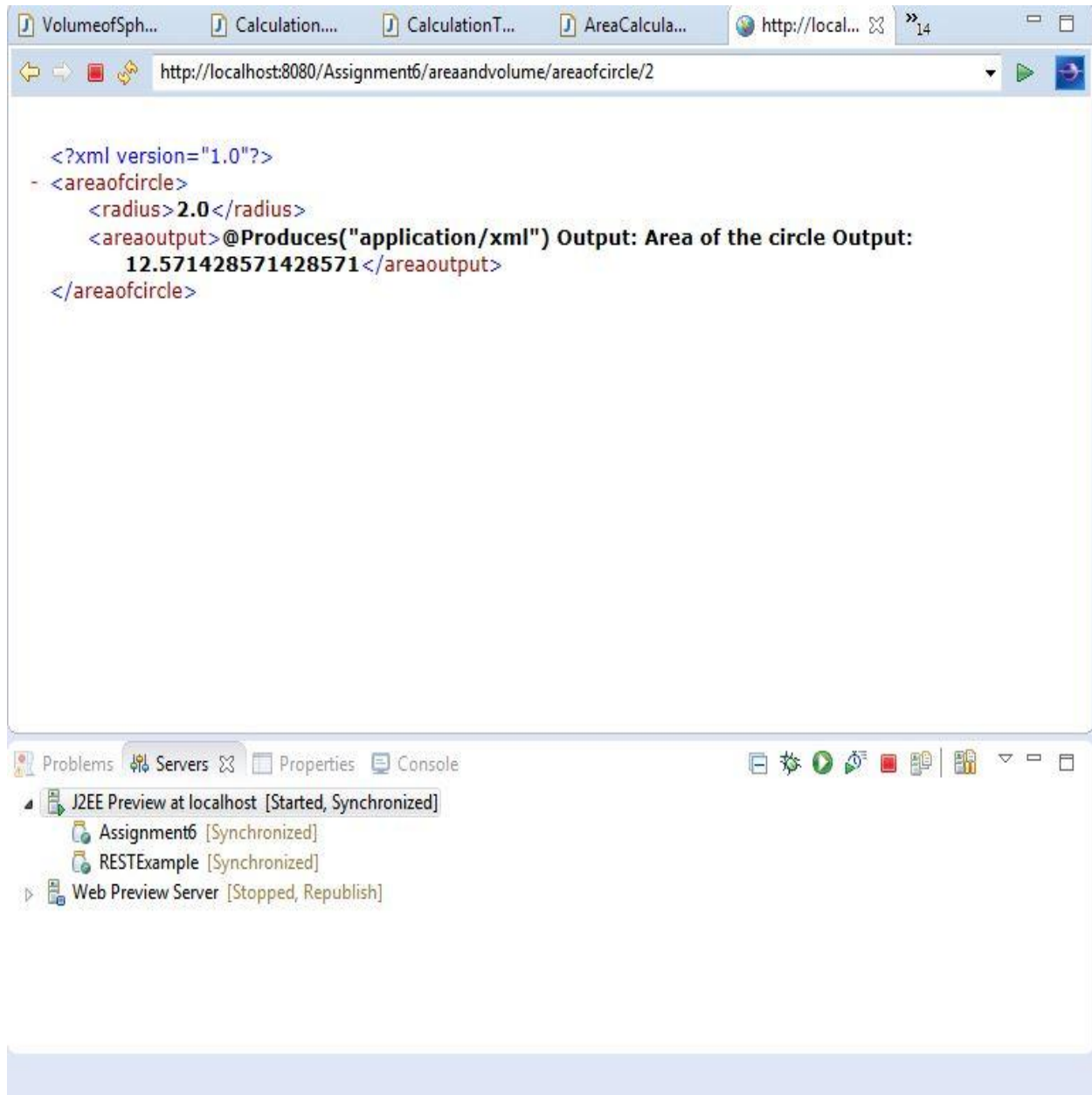
## Output for Default radius:



Output for variable radius:

Value of the Radius is provided in the url.

You can find the url in the screenshot



## Volume of a sphere:

### Code:

```
3 import javax.ws.rs.GET;
4 import javax.ws.rs.Path;
5 import javax.ws.rs.PathParam;
6 import javax.ws.rs.Produces;
7
8 @Path("/volumeofsphere")
9 public class VolumeofSphere {
10     @GET
11     @Produces("application/xml")
12     public String volume_of_sphere() {
13
14         Double volume;
15         Double radius = 7.0;
16         volume = (4 * 22 * radius * radius * radius)/(7*3);
17
18         String result = "@Produces(\"application/xml\") Output: \n\nVolume of the sphere Output: \n\n" + volume;
19         return "<VolumeOfSphere>" + "<radius>" + radius + "</radius>" + "<volumeoutput>" + result + "</volumeoutput>" + "</VolumeOfSphere>";
20     }
21
22     @Path("/{r}")
23     @GET
24     @Produces("application/xml")
25     public String volume_of_sphere(@PathParam("r") Double r) {
26
27         Double volume;
28         Double radius = r;
29         volume = (4 * 22 * radius * radius * radius)/(7*3);
30
31         String result = "@Produces(\"application/xml\") Output: \n\nVolume of the sphere Output: \n\n" + volume;
32         return "<VolumeOfSphere>" + "<radius>" + radius + "</radius>" + "<volumeoutput>" + result + "</volumeoutput>" + "</VolumeOfSphere>";
33     }
34 }
```

Problems Servers Properties Console

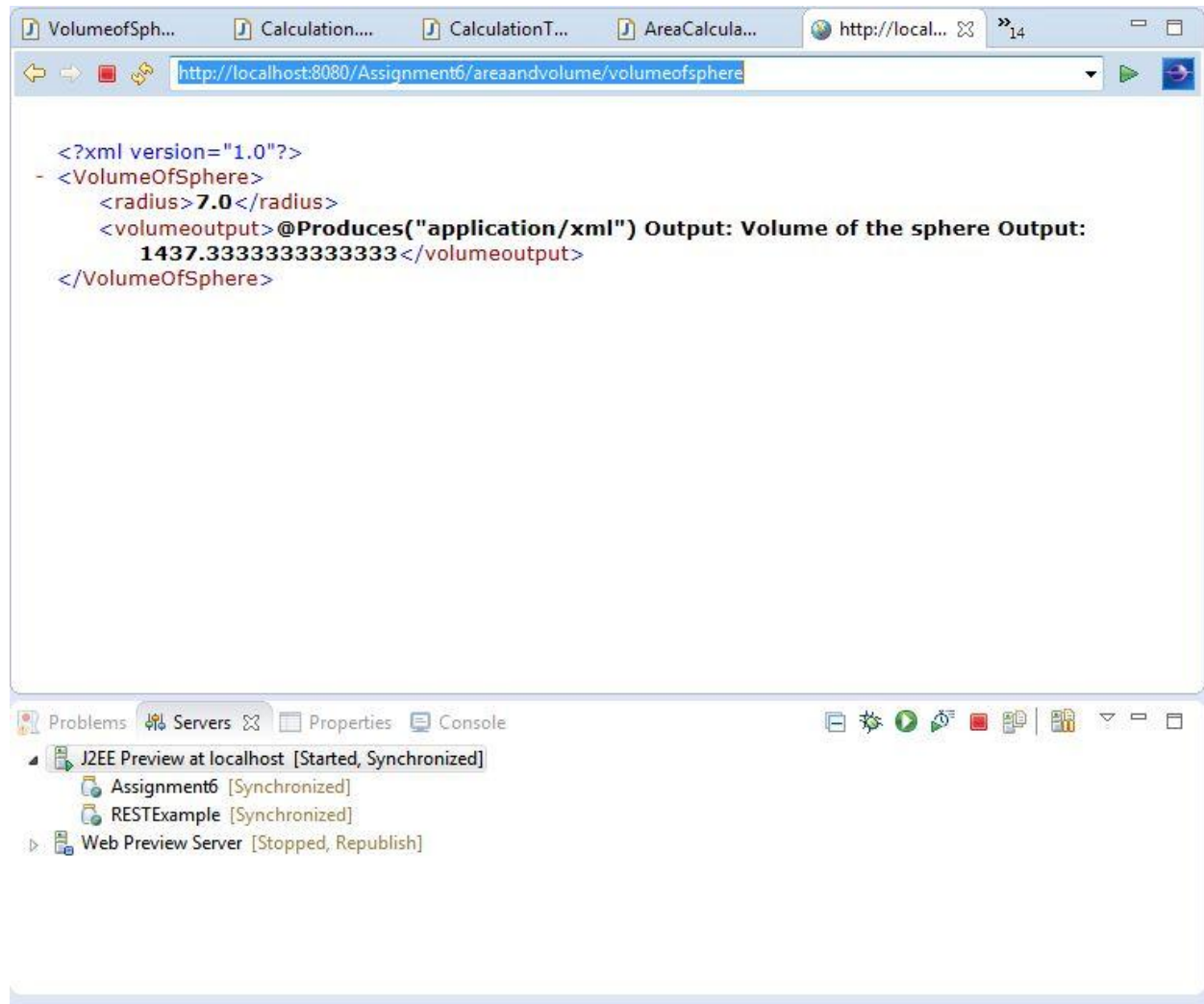
J2EE Preview at localhost [Started, Synchronized]

Assignment6 [Synchronized]

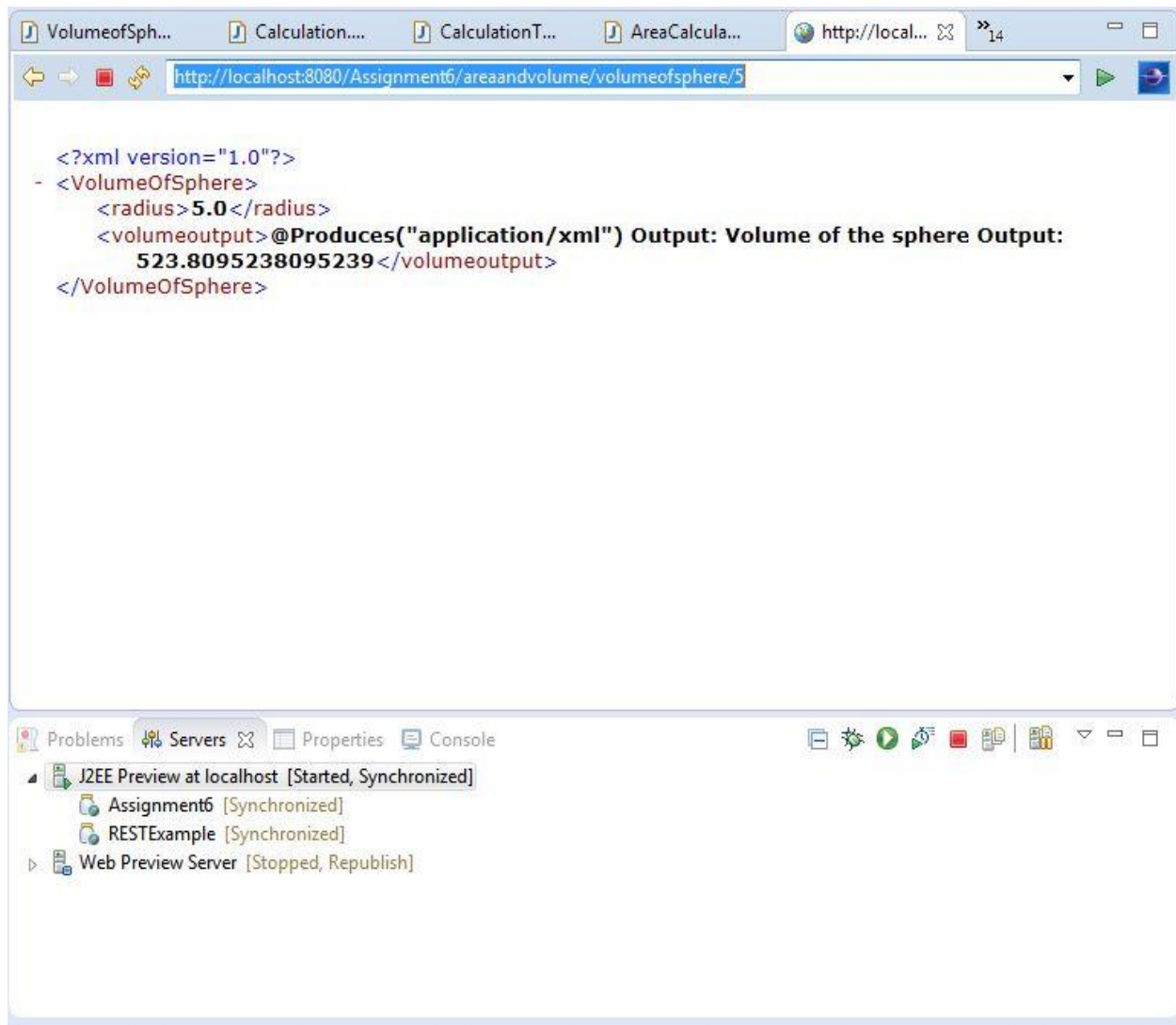
RESTExample [Synchronized]

Screenshots:

Volume of sphere for default radius:



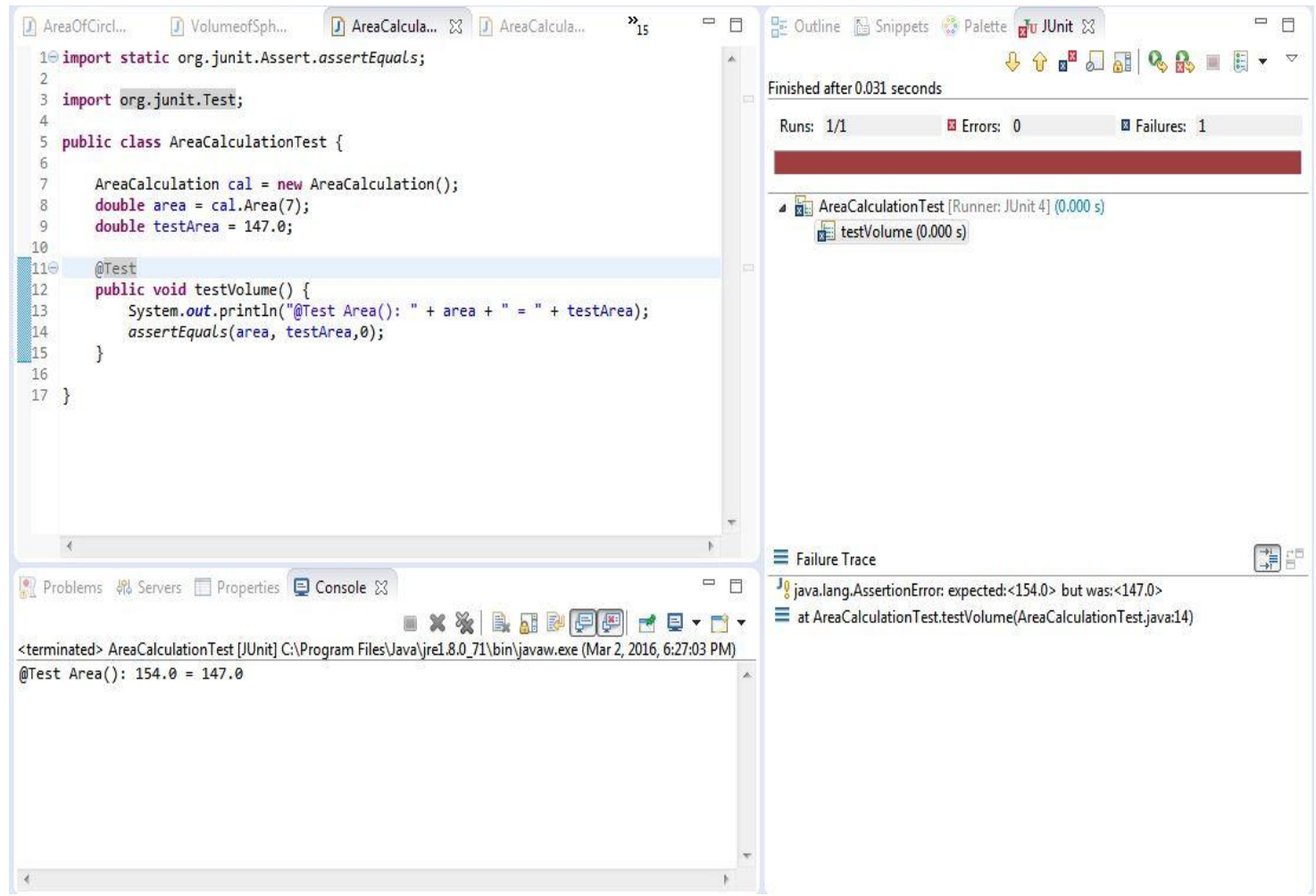
Volume of sphere with variable radius:



## JUNIT Test Cases:

### Test case for area of a circle

### Failure:





## Success:

The screenshot displays an IDE interface with the following components:

- Editor:** Contains the source code for `AreaCalculationTest`. The code imports `org.junit.Assert.assertEquals` and `org.junit.Test`. It defines a class `AreaCalculationTest` with a `testVolume()` method. The method creates an `AreaCalculation` object, calls `Area(7)` to get a value of 154.0, and asserts that this value equals the `testArea` variable (also 154.0).
- JUnit Panel:** Located on the right, it shows the test results. It states "Finished after 0.015 seconds" and displays a summary: "Runs: 1/1", "Errors: 0", and "Failures: 0". A green progress bar indicates a successful run. Below this, the test name "AreaCalculationTest [Runner: JUnit 4] (0.000 s)" is listed.
- Console:** Located at the bottom, it shows the output of the test. It starts with "<terminated> AreaCalculationTest [JUnit] C:\Program Files\Java\jre1.8.0\_71\bin\javaw.exe (Mar 2, 2016, 6:28:23 PM)" followed by the printed output: "@Test Area(): 154.0 = 154.0".



## Test case for Volume of a sphere:

Success

The screenshot displays an IDE interface with the following components:

- Editor:** Contains the source code for `CalculationTest.java`. The code imports `org.junit.Assert.assertEquals` and `org.junit.Test`, defines a `Calculation` class, and includes a `@Test` method `testVolume()` that calculates the volume of a sphere with radius 7 and asserts it against a pre-defined value.
- JUnit Runner:** Located in the top right, it shows the test results. It states "Finished after 0.031 seconds" and displays a summary: "Runs: 1/1", "Errors: 0", and "Failures: 0". A green progress bar indicates a successful run. Below this, the test name "CalculationTest [Runner: JUnit 4] (0.000 s)" is listed.
- Console:** Located at the bottom left, it shows the output of the test. It starts with "<terminated> CalculationTest [JUnit] C:\Program Files\Java\jre1.8.0\_71\bin\javaw.exe (Mar 2, 2016, 6:31:06 PM)" and then displays the printed output: "@Test Volume(): 1437.333333333333 = 1437.333333333333".
- Failure Trace:** Located at the bottom right, it is currently empty, indicating no failures occurred.

## Failure

The screenshot displays an IDE with a JUnit test failure. The code in `CalculationTest.java` is as follows:

```
1 import static org.junit.Assert.assertEquals;
2
3 import org.junit.Test;
4
5 public class CalculationTest {
6
7     Calculation cal = new Calculation();
8     double volume = cal.Volume(7);
9     double testVolume = 1029.0;
10
11     @Test
12     public void testVolume() {
13         System.out.println("@Test Volume(): " + volume + " = " + testVolume);
14         assertEquals(volume, testVolume, 0);
15     }
16 }
17
18
```

The test results panel shows the test finished after 0.031 seconds with 1 failure. The failure trace is as follows:

```
java.lang.AssertionError: expected:<1437.3333333333333> but was:<1029.0>
    at CalculationTest.testVolume(CalculationTest.java:14)
```

The console output shows the test execution details and the printed volume:

```
<terminated> CalculationTest [JUnit] C:\Program Files\Java\jre1.8.0_71\bin\javaw.exe (Mar 2, 2016, 6:29:37 PM)
@Test Volume(): 1437.3333333333333 = 1029.0
```