

L02 - Soda Can Lab

In this exercise, we're going to implement a class `SodaCan`. This class has a constructor that accepts the height and radius of the soda can as parameters. We'll supply the methods `getVolume` and `getSurfaceArea`. We'll also write a `SodaCanTest` class to test our `SodaCan` class.

1. Use a calculator to generate some test cases. We'll use these to check the program's results:

Case 1: $r = 4$ $h = 10$ Area = _____ Volume = _____
Case 2: $r = 3.5$ $h = 7.2$ Area = _____ Volume = _____

2. Enter the program below that contains a skeleton of the `SodaCan` class. You must supply the code that fills in the blanks.

```
/**
 *
 * Constructor and methods for a soda can object
 *
 * @author _____
 * @version _____
 */
public class SodaCan {
    _____ double r; //soda can radius
    _____ double h; //soda can height
    public SodaCan(double ____, double ____){
        r = ____;
        h = ____;
    }
    public _____ findSurfaceArea() {
        return ____; //compute the surface area  $A=2\pi rh+2\pi r^2$ 
    }

    public double findVolume(){
        return ____; //compute the volume  $V=\pi r^2 h$ 
    }
}
```

3. Enter the program below that contains a skeleton of the `SodaCanTest` class. You must supply the code that fills in the blanks.

```

import java.util.Scanner;

/**
 _____
 @author _____
 @version _____
 */

public class _____ {
    public static void main(String[] args) {
        Scanner myScanner = new Scanner(System.in);

        System.out.print("Enter the radius: ");
        String answer = myScanner.nextLine();
        double radius = _____; //convert using the parseDouble method

        System.out.print("Enter the height: ");
        answer = myScanner.nextLine();
        double height = _____; //convert using the parseDouble method

        //instantiate a soda can object using the radius and height above
        //display the surface area to three decimal digits using printf
        //display the volume to three decimal digits using printf
    }
}

```

4. Use your test cases to check your code.

Revision #1

Created 24 April 2025 22:08:47 by Brandon Duke

Updated 24 April 2025 22:09:16 by Brandon Duke