

# EE 2905

Dr. Johnson

## Program 1

No capabilities beyond those  
discussed in class or in the notes  
are allowed

Write a program to calculate the following geometric values based on user inputs for R in centimeters.

- a) Print the volume of a sphere of radius R
- b) Print the area of the greatest cross section of the sphere
- c) Print the length of the greatest arc that can be drawn on the sphere

Use the following input approach

```
float R;  
...  
// read in value for R  
printf("\nEnter your value for R:");  
scanf("%f", &R);
```

and output approach

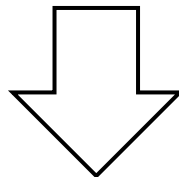
```
float vol;  
...  
// prints values  
printf("The volume of the sphere is: %f cm cubed\n", vol);
```

Turn in your code, and screenshots for values of R

5

5.5

10.5



# Start with something like this

```
////////////////////////////////////
//
// program_1 project
//
// created 8/12/21 by tj
// rev 0
//
////////////////////////////////////
//
// Program to calculate sphere info
//
// Reads in a value for radius
// prints the volume, greatest cross section
// and greatest arc
//
// inputs: user input for R
// outputs: prints 3 values
//
////////////////////////////////////

#include "mbed.h"
#include <stdio.h> // only needed when printing

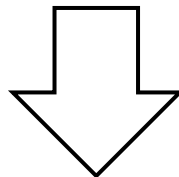
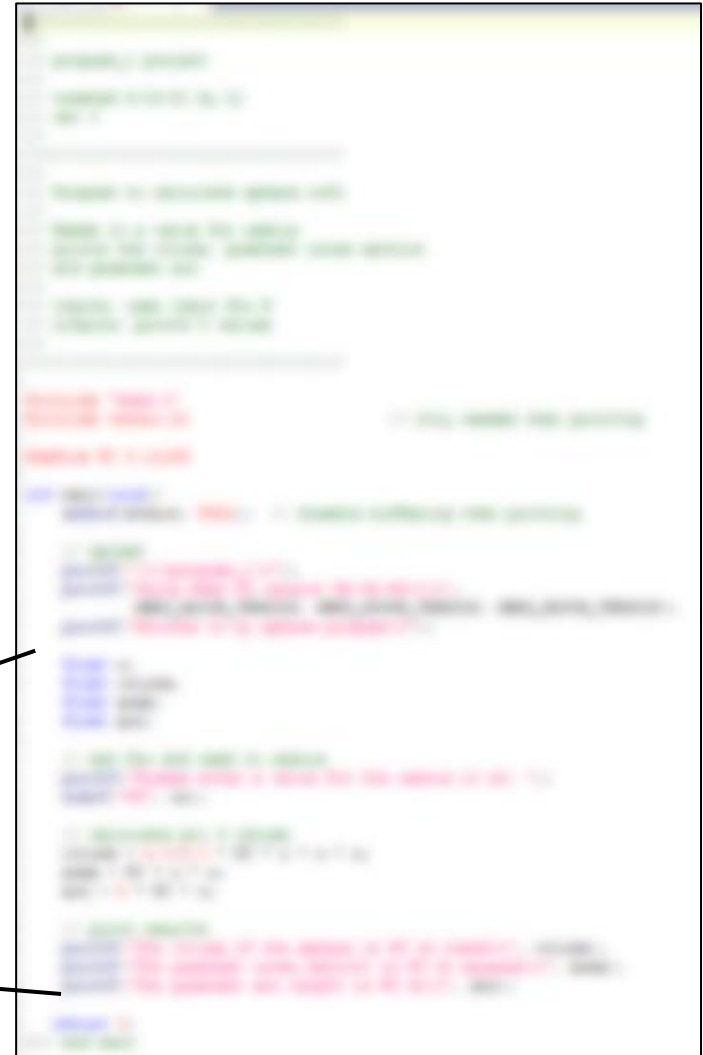
#define PI 3.14159

int main(void){
    setbuf(stdout, NULL); // disable buffering when printing

    // splash
    printf("Welcome to my sphere program\n");

    // Your code here

    return 0;
} // end main
```



End up with something like this – check your values!

```
COM5 - Tera Term VT
File Edit Setup Control Window Help

program_1
Using Mbed OS version 6.10.0

Welcome to my sphere program
Please enter a value for the radius in cm: 5
The volume of the sphere is 523.598328 cm cubed
The greatest cross section is 78.539749 cm squared
The greatest arc length is 31.415899 cm
```

```
COM5 - Tera Term VT
File Edit Setup Control Window Help

program_1
Using Mbed OS version 6.10.0

Welcome to my sphere program
Please enter a value for the radius in cm: 5.5
The volume of the sphere is 696.909363 cm cubed
The greatest cross section is 95.033096 cm squared
The greatest arc length is 34.557491 cm
```

```
COM5 - Tera Term VT
File Edit Setup Control Window Help

program_1
Using Mbed OS version 6.10.0

Welcome to my sphere program
Please enter a value for the radius in cm: 10.5
The volume of the sphere is 4849.043945 cm cubed
The greatest cross section is 346.360291 cm squared
The greatest arc length is 65.973389 cm
```