

Exam 2

SUBMIT original code in Python to solve the problem below.

Please be aware that copying and pasting code from any other source other than code you have explicitly written on your own is considered plagiarism. If you receive help, that is fine (document help in the comments of your code) however you need to write your own code, name your own variables, and comment your own code. Students turning in the exact same work as another student will all be given zeros. Plagiarism is not tolerated, and students found to be plagiarizing will be given a zero and reported to the University with the possibility of termination of the class and degree program.

The civil engineering department has asked you to write a program to calculate the volume of a water tower. Water towers are a cylinder topped with a half sphere.

Write two functions that will calculate the volume of a sphere and a cylinder respectively. Then, use these functions to write a program that will calculate the total volume of a water tower.

The formula for the volume of a Sphere is: $V = \frac{4}{3}\pi r^3$

The formula for the volume of a Cylinder is: $V = \pi r^2 h$

Hint: Remember that the tower only consists of a **half sphere**. You do not need to round or truncate your output.

Save your program as **Exam2.py** and upload your source file to the appropriate dropbox in GradeScope, **NOT D2L!**

Sample Input Example:

What is the radius for the sphere portion: **98**

What is the radius for the cylinder portion: **98**

What is the height for the cylinder portion: **102**

Sample Output Example:

Volume: 5048757.212068677

REMEMBER

- Include the comment heading at the top of your code.

```
# Program Name: Exam2.py (use the name the program is saved  
as)  
# Course: IT1114/Section XXX  
# Student Name: John Doe  
# Assignment Number: Lab#  
# Due Date: xx/xx/ 20XX  
# Purpose: What does the program do (in a few sentences)?  
# List specific resources used to complete the assignment.
```

- Place comments within your code explaining the programming segments