Programming Project 2 – Pyramid Model

Note: When you turn in an assignment to be graded in this class, you are making the claim that you neither gave nor received assistance on the work you turned in (except, of course, assistance from the instructor or teaching assistants).

In this project, you will calculate the price of building a model of a pyramid. You will ask the user to enter the length of one of the base sides and height of the pyramid. You will then use the following formulas to calculate the surface area of the pyramid:

- Surface Area of a regular square pyramid: SA = B + ½ * 4bl, where B is the area of the Base of the square, b is the length of one of the base sides, and l is the slant length
- Area of the base of the pyramid: B =b^2, where b is the length of one of the base sides of the pyramid
- Slant length: l = $\sqrt{(\frac{1}{2} * b)^2 + h^2}$, where b is the length of one of the base sides of the pyramid and h is the height of the pyramid

Once you have the surface area of the pyramid, you will calculate the price of the sculpture, by multiplying the price of the material, which is $1.32 per square inch, times the surface area that you calculated for your model.

Here is a typical program run. The sample user input is shown in blue italics.

Sara Student

Project 2 – PyramidModel.py

This project displays the area and costs of building a model of a rectangular pyramid.

Month Day, 20XX

Enter the length of the base of the pyramid (inches): ***16***

Enter the height of the pyramid (inches): ***24***

The Sara's Metal Art surface area calculations are:

Surface area of the pyramid: 1065.54 square inches

Total cost of the material is $1406.51

Before beginning this project, you will document your algorithm as a list of steps to take you from your inputs to your outputs. Each step will be added as a comment block within your code. You will have the comment block right above the code that performs the actions specified.
For example, before your lines of code that ask the user for inputs, you would have a comment block that states what inputs you are requesting from the user. Please see the example code provided as a sample of this.

This and all program files in this course must include a comment block at the beginning (top) of the source code file that contains:

- your name
- the Python program name
- project description
- the date

The comment lines should look like this:

```
################################################################################
#  Your name
#  Python program name
#  Project description
#  The date
################################################################################
```

Your program must be in its own file and must compile and execute correctly using IDLE or the command line.

Name your source code file **`PyramidModel.py`**. Test your application to be sure that it produces the correct output.

You will submit the following to the Assignment link in Blackboard:

- source code (PyramidModel.py)

Ask questions about any part of the programming project that is not clear!

Rubric

Topic	Points
Code runs and produces the correct output	25
Code outputs the project information requested	5
Code contains a comment block at the top as specified	5
Code contains comment blocks throughout that document the algorithm	5
Variables and constants are named appropriately	5
Code is easy to read	5
Total	50