B-Level: Write, document, and test a single interactive C++ program that will accept keyboard entry of the radius of a sphere [ft] and either the height of a cone [ft] or triangular pyramid [ft]. The program will calculate and display the volumes of either (1) the sphere [cm$^3$] and cone [cm$^3$], or (2) the sphere [cm$^3$] and triangular pyramid [cm$^3$]. Finally, the program must declare which figure has the largest volume. Format screen output as follows: display the volume of the sphere as a decimal value with exactly three digits to the right of the decimal point; display the volume of the cone/pyramid in scientific notation with exactly four digits to the right of the decimal point. Typical screen dialog is shown below.

Would you like to compare the volumes of (1) a sphere and a cone, or (2) a sphere and a triangular pyramid [enter 1 or 2]: 2

Enter the radius [ft] of the sphere of interest: 4.2
Enter the height [ft] of the triangular pyramid of interest: 8.4
Enter the lengths [ft] of the 3 sides of the pyramid’s triangular base, separated by a space: 12.7 11.9 10.6

The volume of the sphere is: 8787824.366 cubic cm
The volume of the pyramid is: 4.6510e+006 cubic cm

The sphere is larger.

Note: Assume only viable lengths are entered for the base of the triangular pyramid.

Include a copy of your program’s output for sphere radius 3.7 ft, pyramid height = 6.9 ft, and base lengths 6.3 ft, 5.8 ft, and 5.2 ft.
**A-Level:** Add the appropriate code to your B-Level program to handle the case in which non-viable lengths are entered for the base of the triangular pyramid. **Note:** the A-Level is a separate program, with code added to accomplish the additional task. Typical screen dialog is shown below.

Would you like to compare the volumes of (1) a sphere and a cone, or (2) a sphere and a triangular pyramid [enter 1 or 2]: 2

Enter the radius [ft] of the sphere of interest: 4.2
Enter the height [ft] of the triangular pyramid of interest: 8.4
Enter the lengths [ft] of the 3 sides of the pyramid’s triangular base, separated by a space: 31.3 11.9 10.6

The base lengths specified are invalid. Please try again.

Enter the lengths [ft] of the 3 sides of the pyramid’s triangular base, separated by a space: 12.7 11.9 10.6

The volume of the sphere is: 8787824.366 cm$^3$
The volume of the pyramid is: 4.6510e+006

The sphere is larger.

*Include a copy of your program’s output for these two cases:*

1. sphere radius 3.7 ft, pyramid height = 6.9 ft, and base lengths 6.3 ft, 5.8 ft, and 5.2 ft;
2. sphere radius 3.7 ft, pyramid height = 6.9 ft, and base lengths 16.5 ft, 5.8 ft, and 5.2 ft