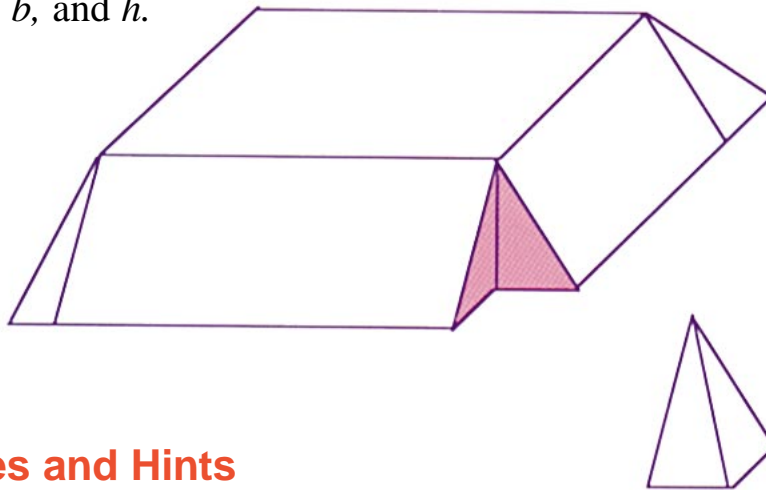


The Nine-Part Frustrum

Problem-of-the-Week

The Problem

A frustrum of a pyramid is the portion of the pyramid between the base and a plane parallel to the base. The frustrum of a right pyramid with a square base is divided into 9 solid figures. The square base of the frustrum has sides of length b ; the square top has sides of length a ; and the height is h . Find an expression for the volume of the frustrum in terms of a , b , and h .



Strategies and Hints

1. Describe the 9 polyhedra that make up the frustrum.
2. Write an expression for the volume of the prism with the square base.
3. Write an expression for the volume of one of the prisms with a triangular base.
4. Write an expression for the volume of one of the pyramids.

