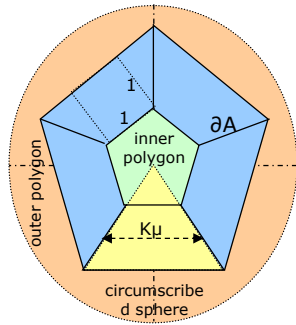


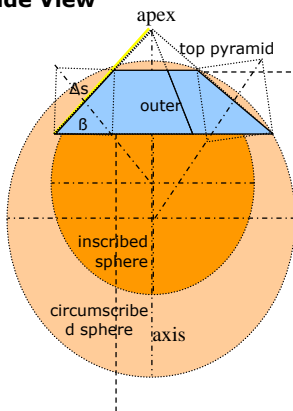
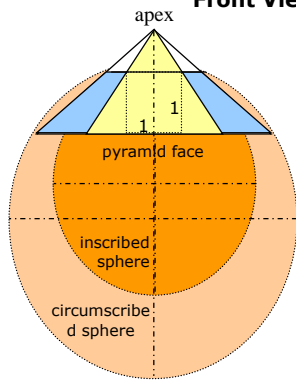
# Drafting a Virtual Reef

These notes helped me build the Metrics sheet, but are not part of it. They can probably be discarded.

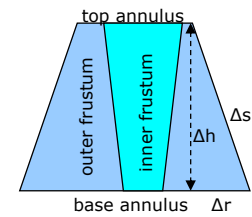


These three views of a pyramidal frustum are coordinated through the dashed rectangle. When its upper-right corner is on the diagonal line, its other three corners locate the same point in all three views.

**Top View  
Front View Side View**



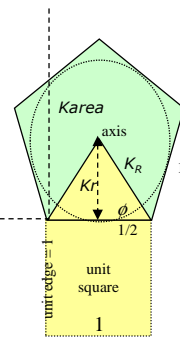
The right virtual reef below includes some defects: the inner frustum is off center and upside-down. The volume and surface area are unaffected, so we may assume they are right-side up and coaxial for easier calculations. An upside-down frustum has the same slant height as a rightside-up one, so slant height is not a good measurement.



**A Virtual Reef**

The unit polygon is here a regular polygon with unit edge length. Its lengths and areas are coefficients of  $e$  and  $e^2$  in calculating similar lengths and areas of a regular polygon with edge length  $e$ .

The chart on the left shows a unit annulus for an arbitrary  $n$ -gon, for  $n=3, \dots, 9$ . The other views have  $n=5$  as the smallest



**Scaled Unit Polygon**

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