Fig. 415.22 Rational Volumes of Tetrahedroning:

A. The cube may be formed by placing four 1/8-octahedra with their equilateral faces on the faces of a tetrahedron. Since tetrahedron volume equals one, and 1/8-octahedron equals 1/2, the volume of the cube will be: 1 + 4(1/2) =3.

B. The rhombic dodecahedron may be formed by placing eight 1/4-tetrahedra with their equilateral faces on the faces of an octahedron. Since the octahedron volume equals four and 1/4-tetrahedron equals 1/4, the volume of the rhombic dodecahedron will be: 4 + 8 (1/4) = 6.