

## The Problem of the Month October 2022

The cube and the octahedron are dual Platonic solids in the following sense. Each has the same number of vertices as the other has faces. As such, it is possible to place a cube inside an octahedron so that each vertex of the cube lies at the in-center of a face of the octahedron. Likewise, one can place an octahedron inside a cube in a similar fashion. Start with a cube, inscribe it with an octahedron, as just described, and then inscribe this octahedron with a cube. Find the ratio of the lengths of the edges of the large cube to those of the small cube.

