1139-52-371 **Ian M Alevy*** (ian_alevy@brown.edu), Division of Applied Mathematics, 182 George Street, Box F, Providence, RI 02912. *Regular Polygon Surfaces.*

A *regular polygon surface* M is a surface graph (Σ, Γ) together with a continuous map ψ from Σ into Euclidean 3-space which maps faces to regular polygons. When Σ is homeomorphic to the sphere, and the degree of every face of Γ is five, we prove that M can be realized as the boundary of a union of dodecahedra glued together along common facets. Under the same assumptions but when the faces of Γ have degree four or eight, we prove that M can be realized as the boundary of a union of cubes and octahedra glued together along common facets. We exhibit counterexamples showing the failure of both theorems for higher genus surfaces. (Received February 16, 2018)