

1135-40-3098

Michael G Augspurger (augspurgermg1@gcc.edu), 200 Campus Dr. Box #1577, Grove City, PA 16127, and **Rachel E Falk** (falkre1@gcc.edu), **Joseph E Swanson*** (swansonje1@gcc.edu) and **Michael A Jackson** (majackson@gcc.edu). *Number Sequences of Truncated Simplices*. Preliminary report.

Polytope numbers are sequences of nonnegative integers constructed geometrically from polytopes. Our research primarily investigates truncation of the simplest polytope, the simplex, which is a generalization of a tetrahedron to higher dimensions. Truncation is a geometric process removing of vertices by cutting one-third of each edge off, r-truncation makes cuts beyond the midpoint of each edge for shapes in dimensions higher than 3. Our research combines patterns found in low dimensions with the geometric construction of the r-truncated simplex to create a formula which works for any given dimension. By synthesizing H. K. Kim's method with previous research, we have created a formula which generates the polytope numbers for an r-truncated d-dimensional simplex. (Received September 26, 2017)