

1067-Z1-1405 **Ethan Berkove*** (berkovee@lafayette.edu), Department of Mathematics, Lafayette College,
Easton, PA 18042. *The (Colored Cubes)³ Problem.*

There are 30 ways to color a cube with six colors where each face is one color. Starting with a collection of the 30 distinct cubes, it is well-known that one can find 27 cubes which can be stacked into a larger $3 \times 3 \times 3$ cube where each 3×3 face is one color. More generally, given an arbitrary collection of n^3 cubes, when it is possible to assemble the cubes into a larger $n \times n \times n$ cube where each $n \times n$ face is one color? We will answer this question, which was the subject of a summer REU project, and provide some related open questions. (Received September 20, 2010)