

Problem of the Week #22

Assigned: 1300, Thursday 24 MAR 11

Due: 1300, Thursday 31 MAR 11

Cube Counting

Twenty-seven identical cubes are arranged into a larger $3 \times 3 \times 3$ cube, and the outside of this larger cube painted black. Once the paint is dry the cube is disassembled, the 27 smaller cubes mixed, and then arbitrarily reassembled into a $3 \times 3 \times 3$ cube. What is the probability that the entire outside of this newly formed cube is painted black?

Email solutions to Christopher.marks@usma.edu with subject line: POTW.

Solutions can be emailed in the form of: an email (plain text) no attachment, a word document, a mathematica file, an excel workbook, or a scanned adobe file of your work.

If none of these options work for you, you may drop a hardcopy off at my office TH239C, just annotate the time of submission.