

ZMATH 2013b.00588

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Ball in a box.

Math. Sch. (Leicester) 41, No. 1, 25-27 (2012).

Summary: The article presents pairings of 2-dimensional (2-D) shapes occupying space inside other shapes to 3-dimensional (3-D) analogues. It provides the formula to obtain the proportion of volume of a cube occupied by a sphere in a cube. It cites the formula to obtain the volume of a sphere occupied a cube in a sphere. It notes formulas to obtain the ratio of the volumes of cylinders in a cube and similar scenarios.

Classification: G30 I40

Keywords: solid geometry; volume; spheres; cubes; cylinders; cones; ratio; optimization; differentiation