

Problems of the Month

April 2018

General Problem:

You are investigating a spherical marble. If the volume is increased by a factor of 8, by what factor is the surface area increased?



Calculus Problem:

A spherical tank has a radius of 10 inches. is filled three-quarters of the way up with water: by which we mean the water line is at 7.5 inches. As a percentage of total volume, how full is the tank?

Challenge Problem:

There is a list of 2013 consecutive positive integers such that the sum of the squares of the first 1007 integers is equal to the sum of the squares of the last 1006 integers. Find the first integer in this list.

