

# WMU Math Club Math Challenge Problem November 2023

## The Problem.

Find the maximum volume of a right circular cone inscribed in a unit sphere.

## Instructions.

1. Solve the problem.
2. Type your solution to the problem, preferably in  $\text{T}_\text{E}\text{X}/\text{L}\text{A}\text{T}_\text{E}\text{X}$ .
3. Email your solution to [david.richter@wmich.edu](mailto:david.richter@wmich.edu) with the phrase “November Challenge Problem” in the subject field before December 1, 2023.

**More Information.** If you submit the best solution, explained clearly and completely (and succinctly), then your solution will be posted on the WMU Math Club bulletin board next month, you will be recognized as the winner during the next meeting of the WMU Math Club, and you will receive a prize (probably a book). All undergraduate and graduate students may submit solutions. Do not submit more than one solution; every submission after your initial submission will be ignored. Please include your name in your write-up. Please make contact with Prof. David Richter if you have any questions.

**Report from October 2023.** Abdul Nasser (a graduate student) and Ritabrato Chatterjee (an undergraduate student) submitted solutions.