

ToT Spring 1999 S-A1

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TWITCH SOLVES ISL

Episode 67

Problem

A convex polyhedron is floating in the Aegean sea. Can 90% of its volume be below the water level while more than half of its surface area is above the water level?

Video

https://youtu.be/jacgQ_r-ROE

External Link

<https://aops.com/community/p15168372>

Solution

Yes. Take a short fat triangle, this can be checked to work for the 2D case. Then expand it to a sufficiently long triangular prism to finish.