WillItFloat

March 4, 2024

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1 CE 3305 Engineering Fluid Mechanics Spring 2024 Exam 2 Extra Credit

LAST NAME, FIRST NAME

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1.0.1 Purpose :

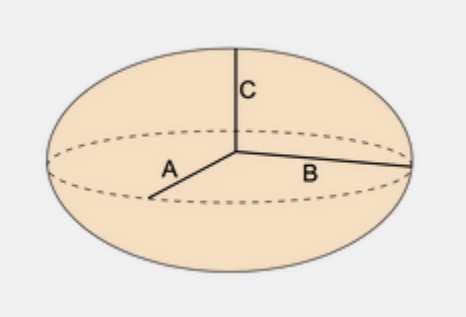
Demonstrate ability to apply fluid mechanics and problem solving principles covering topics such as: geometry, density, bouyancy.

1.0.2 Problem

A small piece of volcanic ejecta from Amboy Crater is at the front of the classroom

The mass of the object is 23.93 grams. The porosity of typical pumice is $\eta = 64\tilde{}85\%$ by volume Wikipedia

The ellipsoid method to approximate volume uses 3 measurements A,B, and C, called semi-axes.



$V = \frac{4}{3} * \pi * A * B * C$

The porosity of typical pumice is $\eta = 64\tilde{}85\%$ by volume Wikipedia. The porosity can be used to approximate the solids volume from the expression:

$V_{total} \cdot (1 - \eta) \approx V_{solids}$

Determine: 1. An estimate of the volume of the irregular shaped object (in milliliters). 2. An estimate of the solids volume, based on a porosity of 64% 2. Will it float?

sketch(s) here

list known quantities

list unknown quantities

governing principles

solution (step-by-step)

[ ]:
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# script (code) here
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discussion