

Fundamentals of Fluid Mechanics

Questions and Answers

Question by AME536A Student

Hello Professor, What are the necessary condition(s) we must satisfy in order to have a potential flow? Specifically in Homework 10 Problem 3 part b it must be proved that potential flow is not satisfied for $r < R$. Is this just a matter of finding whether or not the curl of the velocity is equal to zero (ie irrotational)? Thank you.

You need to show that the velocities satisfy the potential equation.

Question by AME536A Student

Hello Professor, could you hold an office hour on Tuesday or Wednesday this coming week because Monday is a holiday?

Let's have an office hour right after class on Tuesday.

Question by AME536A Student

For question 3 of assignment 2, do we need to know the mass of the plate to calculate the final answer?

In this case, assume that the plate mass is much less than the mass located on the plate.

Question by AME536A Student

In question 6 of this week's assignment, I'm a bit stuck on finding the density of the air in the tube (part c). Can this air be treated as an ideal gas with the same temperature as the outside air?

Air can be treated as an ideal gas. If you fix its temperature to the surroundings, justify this with one or two sentences.

Question by AME536A Student

In assignment 3, question 2, what is the shape of the duct?

The duct has a height H and infinite depth along z .