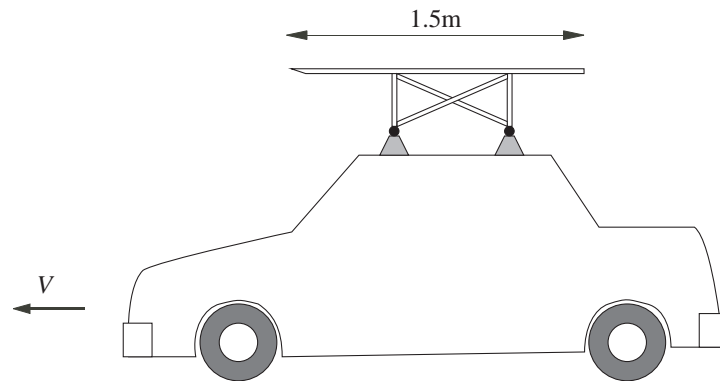


Consider the poor-student's "wind tunnel" depicted in the sketch below.



1. What is Re_L if the car is moving at 10 MPH, 30 MPH, 60 MPH?
2. What is the boundary layer thickness at the end of the plate for these speeds?
3. What is the total drag force *on the plate* at these speeds?
4. Assume that the plate is supported by four posts 2 cm in diameter and 20 cm long. What is the drag force on the four posts. Neglect the effect of the cross braces and any interaction between the flow around the posts and the flow over the car roof or flow around the attachment of the posts to the plate.