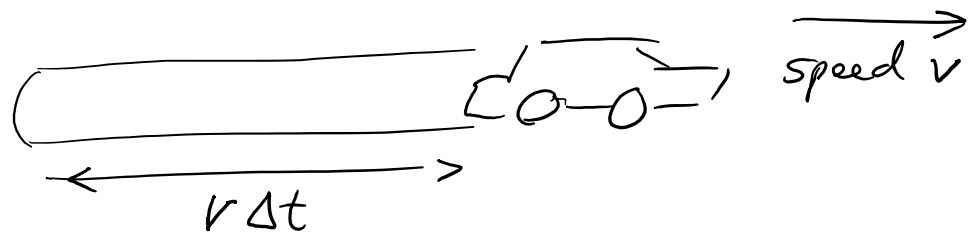


Hint for HW#2 Question 1.

In the class notes I derived



$$\text{Energy transferred to air} = \frac{1}{2} \rho A_{\text{eff}} v^3 \Delta t$$

where A_{eff} is the effective cross sectional area of the car. The effective area is often written as

$$A_{\text{eff}} = C_D A$$

where C_D is the drag coefficient and A is the actual cross-sectional area. $C_D \approx 0.3$ for a typical sedan.

To complete this question, please use symbols to make your argument (not specific numbers). Your goal is to get expressions for the work done by the car on the surrounding air when the car drives at constant velocity for time Δt .