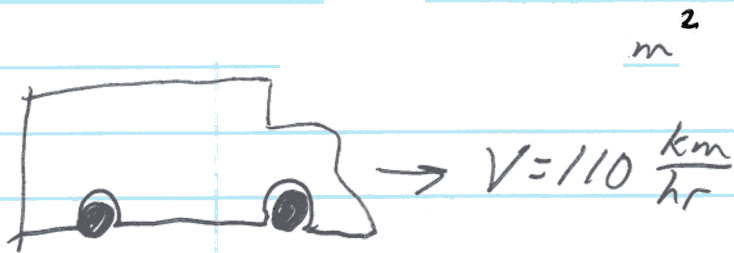


M.S. 2.20

$$F_d = C_d A \frac{1}{2} \rho V^2 \quad \leftarrow \text{Drag Force}$$

↑
Drag Coefficient



$$C_d = 0.65$$

$$\rho = 1.1$$

$$\dot{W} = F V$$

$$= C_d A \frac{1}{2} \rho V^2 \cdot V = (0.65)(10 \text{ m}^2) \frac{1}{2} (1.1 \frac{\text{kg}}{\text{m}^3}) \left(\frac{110,000 \text{ m}}{3600 \text{ s}} \right)^3$$

$$\dot{W} = 101990 \text{ J/s} = 101,990 \text{ W} = \underline{\underline{102 \text{ kW}}}$$