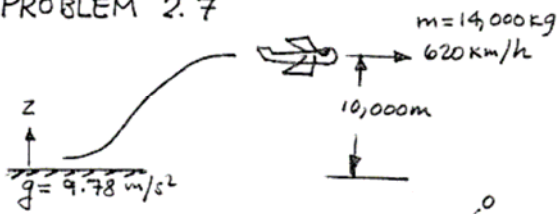


PROBLEM 2.7



$$\Delta KE = \frac{1}{2} m [v_2^2 - v_1^2]$$

$$= \frac{1}{2} (14000 \text{ kg}) \left[620 \frac{\text{km}}{\text{h}} \left| \frac{1 \text{ h}}{3600 \text{ s}} \right| \left| \frac{1000 \text{ m}}{\text{km}} \right| \right]^2 \left| \frac{1 \text{ N}}{1 \text{ kg} \cdot \text{m/s}^2} \right| \left| \frac{1 \text{ kJ}}{10^3 \text{ N} \cdot \text{m}} \right|$$

$$= 207,623 \text{ kJ}$$



$$\Delta PE = m g (z_2 - z_1)$$

$$= (14000 \text{ kg}) (9.78 \text{ m/s}^2) (10,000 \text{ m}) \left| \frac{1 \text{ N}}{1 \text{ kg} \cdot \text{m/s}^2} \right| \left| \frac{1 \text{ kJ}}{10^3 \text{ N} \cdot \text{m}} \right|$$

$$= 1,369,200 \text{ kJ}$$

