



8. a)  $F_L = \frac{1}{2} \cdot c_W \cdot \rho_{\text{Luft}} \cdot v^2 \cdot A = \frac{1}{2} \cdot 1 \cdot 1.29 \frac{\text{kg}}{\text{m}^3} \cdot \left( \frac{24.1}{3.6} \frac{\text{m}}{\text{s}} \right)^2 \cdot 0.50 \text{ m}^2 = 14.453 \text{ N} = \underline{\underline{14 \text{ N}}}$

b)  $s = v \cdot t = 6.7 \frac{\text{m}}{\text{s}} \cdot 1.0 \text{ s} = \underline{\underline{6.7 \text{ m}}}$

c)  $W = F \cdot s = 14.45 \text{ N} \cdot 6.7 \text{ m} = 96.83 \text{ J} = \underline{\underline{97 \text{ J}}}$

d)  $P = \frac{W}{t} = \frac{96.83 \text{ J}}{1.0 \text{ s}} = 96.83 \text{ W} = \underline{\underline{97 \text{ W}}}$

9.  $t = \frac{W_{\text{Hub}}}{P} = \frac{m \cdot g \cdot h}{P} = \frac{48 \text{ kg} \cdot 9.81 \frac{\text{m}}{\text{s}^2} \cdot 8.0 \text{ m}}{320 \text{ W}} = \underline{\underline{12 \text{ s}}}$

10.  $P \cdot t = W = F \cdot s \Rightarrow s = \frac{P \cdot t}{F} = \frac{500 \text{ W} \cdot 3600 \text{ s}}{200 \text{ N}} = \underline{\underline{9.00 \text{ km}}}$