

Physics B – Final Exam Review Solutions

- $t = 1.7\text{hrs}$
 $l_0 = 253\text{m}$
 $m = 28,900\text{ kg}$
- $h = 18.7\text{m}$
- $T = 0.23\text{N}$
 $\theta = 70.4^\circ$
- You need to find the total force on q_2 ($F_{\text{net}} = 2.7\text{N}$) then choose q_4 so that it's *vertical component* balances that of F_{net} .
 $q_4 = 19.5\ \mu\text{C}$
- $I_1 = I_2 + I_3$
 $24 = 13 I_1 + 12 I_3$
 $24 = 13 I_1 + 4 I_2$
 $I_1 = 1.5\text{A}; I_2 = 1.13\text{A}; I_3 = 0.38\text{A}$
 $V_5 = 7.5\text{V}; V_8 = 12\text{V}; V_{12} = V_4 = 4.5\text{V}$
- $25v_1 + 80v_2 = 365$
 $25v_1^2 + 80v_2^2 = 1345$
 $v_1 = 0.81\text{m/s}; v_2 = -7.2\text{ m/s}$
- $\theta = 72.1^\circ$
Assuming $L = W$ before banking, $L_y = 76,600\text{N}$
The plane is falling b/c $W > L_y$