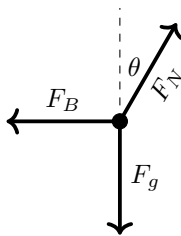


Chapter 27 - The Magnetic Field and Magnetic Forces

Physics 207

Problem 1:



$$I = \frac{mg \tan \theta}{LB} \text{ Out of page in side view or left in front view}$$

Problem 2: $B = \frac{1}{20d} \sqrt{\frac{mV}{e}}$ out of the page

3a) Countering $\vec{\tau} = I_0 ab B \cos \theta \hat{j}$

3b) Countering $\vec{\tau} = -I_0 ab B \sin \theta \hat{j}$

3c) Same as above

4a) $V = \frac{mgR}{\ell B}$

4b) $a = 9g$

5a) $\frac{m_2}{m_1} = \frac{r_2}{r_1}$

5b) diameter = 1.252 m and yes they reach the end

6a) $\vec{F} = 0$

6b) $\vec{F} = -\frac{I_0 B_0 ab}{2} (b\hat{i} + a\hat{j})$