Exam 3 2014 solutions

2. $$H = \frac{\mu L}{\left(\frac{M}{M+m}\right)^2 \cos^2\theta}$$

3. $$\vec{L} = (-RCt + m v_0 R)\odot$$

$$\vec{\tau} = -RC\odot$$

$$\frac{d\vec{L}}{dt} = -RC\odot$$

4. $$F_r = -m_1 s\omega^2$$

$$F_\theta = m_1 s\alpha$$

$$\omega(t) = \frac{m_1 s^2}{m_1 s^2 + m_2 c_1^2 t^2}\omega_0$$

$$\alpha(t) = -\frac{m_1 s^2 \omega_0 2 m_2 c_1^2 t}{\left(m_1 s^2 + m_2 c_1^2 t^2\right)^2}$$