PHYS 101

Homework # 11
DUE DATE: December 15, 2009

Please do not submit copycat answers from the solutions book or some other solution you have in hand. You should at least show your understanding of the problem. Otherwise, this will be considered as cheating.

1) Three identical stars of mass M form an equilateral triangle (of edge length L) that rotates around the triangle's center as the stars move in a common circle about that center. What is the speed of the stars?

2) A satellite is in a circular Earth orbit of radius r. The area A enclosed by the orbit depends on r (as A= πr^2). Determine how the following properties of the satellite depend on r, a) period, b) kinetic energy, c) angular momentum, d) speed.

3) Discussion Question Q12.15 in the text. Chapter 10.

4) Show, how guided by Kepler's law of periods, Newton could deduce that the force holding the Moon in its orbit (assumed circular), depends on the inverse square of the Moon's distance from the center of the earth.