Homework #4
AS101 Summer 2006
Dr. Withers

Assigned: 2006.05.25
Due: 2006.05.26, start of class

1) Read Chapter 4

2) Newton's Law of Gravity is $F = G M_1 M_2 / d^2$, where G is 6.67 x 10^{-11} m^3 / (kg s^2).
Use this equation to find the units of the force F in terms of kg, m, and s.

3) Suppose another solar system has a star that is four times as massive as the Sun and a
planet called Banana. If Banana is ten times as massive as Earth and orbits its star at 1
AU, what is its orbital period? [HINT - It is possible to do this question without a
calculator]

4) What is the velocity of a car driving at the speed limit on the freeway from Boston to
Florida?

5) What causes tides?