Name:			Thursday, June 23, 2011
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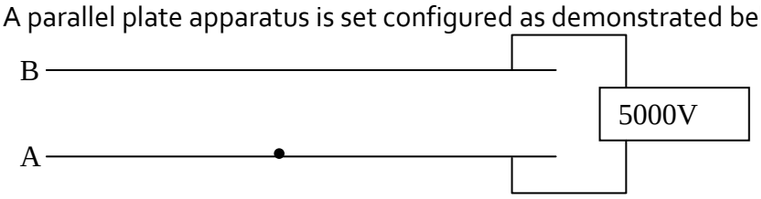
1. A planet of mass $4.5\times10^{26}kg$ has a radius of $5.3\times10^{6}m$. If a satellite is located 2 radii above the surface determine:
   a) the force of attraction between the satellite and planet if the satellite has a mass of $23486kg$
   b) the period of the satellite and its tangential velocity
   c) the amount of energy required to increase the orbital radius by 20%
   d) the acceleration due to gravity on the surface of the planet.

2. If the length of the day on the planet is 15 Earth hours, determine the amount of energy lost if one were to land at a point on the planet with a latitude of 22° from the position of 3 radii above the surface. Solve algebraically first. (assume the mass of your space craft is $987234kg$)

3. Two point charges of mass $1.50g$ and $2.50g$ have a charge of $-2.00\times10^{-3}C$ and $4.50\times10^{-2}C$. If the point charges are located initially $10.0m$ away from each other determine their respective speeds when the reach a separation distance of $1.00m$ assuming they both start from rest.

4. A parallel plate apparatus is set configured as demonstrated below.



   The small particle has a mass of $1.3\times10^{-4}kg$ and has a charge of $-5.8\times10^{-6}C$. If the plates are separated by 12cm determine
   a) the relative voltage of plates A and B
   b) the speed at which the particle arrives at plate B (note the change of Eg is NOT insignificant and must be included… and of course… solve algebraically.