

Physics 9

**Worksheet 1 – Law of Gravitation**

Q1.

What would be the path of the moon if somehow all gravitational forces on it vanished to zero?

Q2.

Is the force of gravity stronger on a piece of iron than on a piece of wood if both have the same mass?

Q3.

A friend says that, since earth's gravity is so much stronger than the moon's gravity, rocks on the moon could be dropped to the earth. [Promising idea given the mineral resources we've found on the moon!] What is wrong with this idea?

Q4.

Calculate the force of gravity between earth (mass =  $6.0 \times 10^{24}$  kg) and its moon (mass =  $7.4 \times 10^{22}$  kg). The average distance between earth and its moon is  $1.5 \times 10^{11}$  m.

Q5.

The mass of a certain neutron star is  $3.0 \times 10^{30}$  kg and its radius is 8,000 m (8 km). What is the acceleration of gravity at the surface of this condensed, burnt-out star? Calculate your weight on this neutron star too.