

GPE Quiz 55

For the following problems, give the answers to three significant figures.

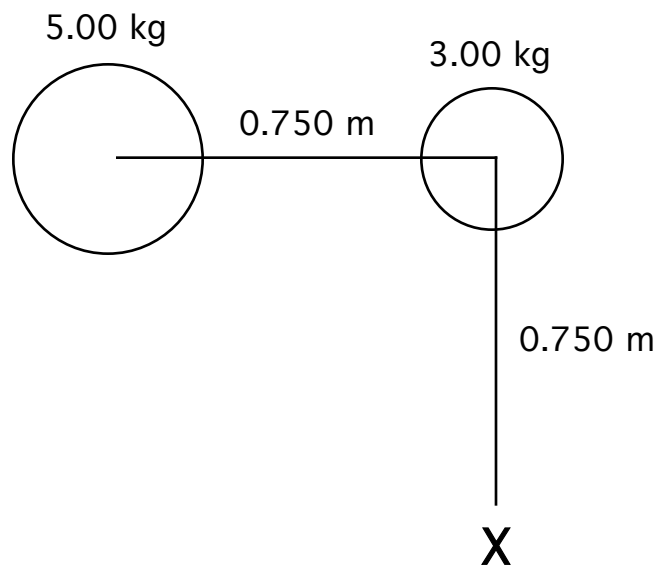
1) Answer the following questions for the situation shown below.

a) Find the GPE for the 3.00 kg mass.

b) Find the work necessary to move the 3.00 kg mass far away.

c) Find the potential energy of the 3.00 kg mass, after it has been moved to point X.

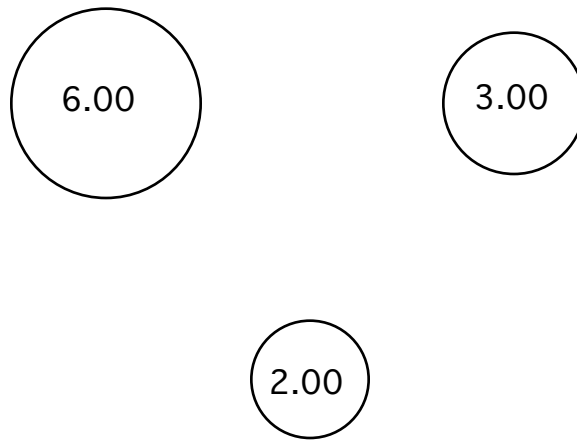
d) Find the work necessary to move the 3.00 kg mass to the point X.



2) An object is dropped from a height of 1.00 moon radii above the moon. Find the final speed.

3) A 980. kg satellite is in a circular orbit above the Earth at a height of 850. km.

- a) Find the total energy.
- b) Find the total energy of the satellite at a height of 1250 km.
- c) Find the work required to move the satellite to a height of 1250 km.
- 4) Find the gravitational potential energy of the system. The masses are given in kg. All of the masses are 0.500 m apart.



Answers; 1)a) -1.33×10^{-9} J, b) 1.33×10^{-9} J, c) -9.43×10^{-10} J,
d) 3.91×10^{-10} J, 2) 1680 m/s, 3)a) -2.70×10^{10} J, b) -2.56×10^{10} J, c)
 1.40×10^9 J, 4) -4.80×10^{-9} J.