WebAssign
Lab #8: Energy in Gravitational Orbits (Homework)

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Current Score : 4 / 4 **Due :** Tuesday, March 6 2012 11:59 PM EST

1. 4/4 points | Previous Answers MI2 05.X.17

A planet of mass 7.00×10^{25} kg is in a circular orbit of radius 3.00×10^{11} m around a star. The star exerts a force on the planet of constant magnitude 3.65×10^{23} N. The speed of the planet is 3.95×10^{4} m/s.

(a) In half a "year" the planet goes half way around the star. What is the distance that the planet travels along the semicircle?
distance = 9.4248e11 ✓ m

(b) During this half "year", how much work is done on the planet by the gravitational force acting on the planet?
work = 0 ✓ J

(c) What is the change in kinetic energy of the planet?
ΔK = 0 ✓ J

(d) What is the magnitude of the change of momentum of the planet?
$|\Delta \vec{p}|$ = 5.53e30 ✓ kg · m/s