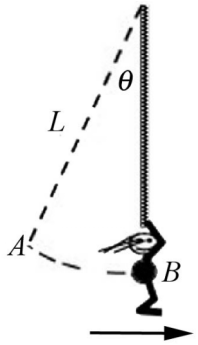
Work and Dot Product
Concept Questions

Question 1

A person swings down on an inextensible rope that is attached to a fixed point. The rope exerts a tension T on the person. The work done by tension on the person as she moves from A to B is:



a) T .

b) $T\ L$.

c) $T\ L\ \theta$.

d) $mgL(1-\cos\theta)$

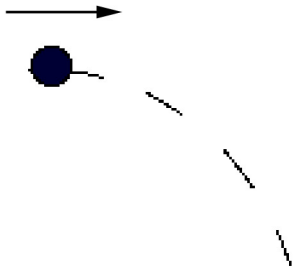
e) zero.

f) Not enough information is given to decide.

Briefly explain your choice of answer.

Question 2: Work and Gravity

A ball is given an initial horizontal velocity and allowed to fall under the influence of gravity, as shown below.

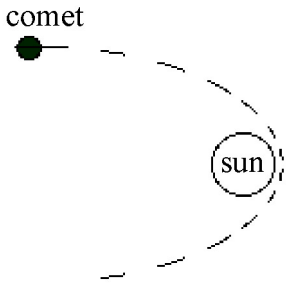


The work done by the force of gravity on the ball is:

1. positive
2. zero
3. negative

Question 3: Comet Orbit

A comet is speeding along a hyperbolic orbit toward the Sun.



While the comet is moving away from the Sun, the work done by the Sun on the comet is:

1. positive
2. zero
3. negative

8.01SC Physics I: Classical Mechanics