

Paper Homework No. 06 (Spring 2018)

PHYS 203A: College Physics

Due date: Wednesday, 2018 Mar 28, 2.00pm, in class

(Name)

(Signature)

Instructions

1. Your submission should include only this page. Other forms of submissions will not be accepted. Please print this page, and write your solution on the back side.
2. Show your thought process in detail and organize it clearly.
3. Make sure your answer has the correct units and the right number of significant digits.

Question

A mass of $m = 25.0 \text{ kg}$ slides down a *frictionless* incline that makes an angle of $\theta = 30.0^\circ$ with the horizontal. Assume that the mass starts from rest. The two forces acting on the mass during the slide are the normal force and the force of gravity. The mass slides $d = 10.0 \text{ m}$ along the incline.

1. Determine the work done by the gravitational force while the mass slides $d = 10.0 \text{ m}$ along the incline.
2. Determine the work done by the normal force while the mass slides $d = 10.0 \text{ m}$ along the incline.
3. Determine the change in gravitational potential energy of the mass while the mass slides $d = 10.0 \text{ m}$ along the incline.
4. Determine the change in the kinetic energy of the mass while the mass slides $d = 10.0 \text{ m}$ along the incline.
5. Find the velocity of the mass at the end of the $d = 10.0 \text{ m}$ slide.