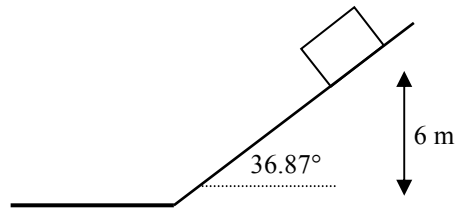
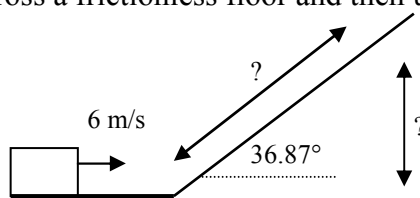


W6.04**Energy****Inclines****Solve Using Energy Methods**

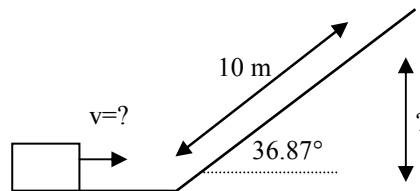
1. A 20-kg block starts from rest on a 36.87° frictionless incline as shown. The block is released and its COG drops 6 meters as the block slides to the bottom.
 - a. What is the block's GPE prior to being released?
 - b. What is the block's KE at the bottom?
 - c. What is the speed of the block on the frictionless horizontal?



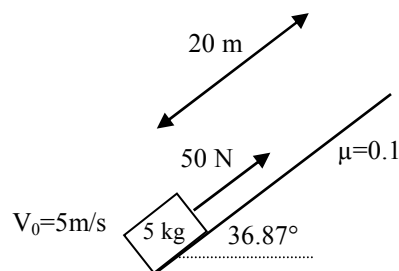
2. A 20-kg block, whose initial speed is 6.0 m/s, slides across a frictionless floor and then up a frictionless 36.87° incline until it comes to a brief stop.
 - a. How much kinetic energy does the block have initially?
 - b. How much does the block's COG rise when it stops briefly?
 - c. How far up (along) the plane will the block slide before stopping?



3. A 20-kg block slides across a frictionless floor and then slides up 10 meter along a rough 36.87° incline ($\mu=0.2$) until it comes to a brief stop. What is the initial speed of the block prior to sliding up the incline?



4. A 5 kg box is pulled up a rough ($\mu = 0.1$) incline by a force of 50 N for a distance of 20 m. If the speed of the box is 5 m/s initially, what is its speed the instant it has traveled the 20-m up the incline?



KEY-W6.04

1.
 - a. 1,200 joules
 - b. 1,200 joules
 - c. 10.95 m/s

2.
 - a. 360 joules
 - b. 1.8 meters
 - c. 3 meters

3. 12.33 m/s

4. 12.37 m/s