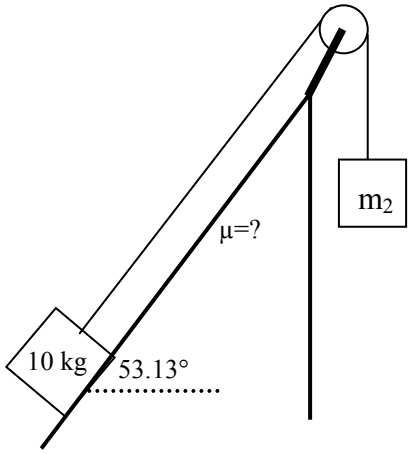
W6.06c

Energy

Systems

Solve Using Energy Methods

1. The system to the right is released from rest. The instant the suspended mass (m_2=15.8278 kg) has fallen 10 meters, the blocks have speeds of 7 m/s.
   a. How much GPE did the suspended mass "lose", the instance the suspended mass has fallen 10 meters?



   b. Where did the GPE "lost" go? Note: disregard air resistance.

   c. What is the KE of each block, the instant the suspended mass has fallen 10 meters?

   d. How much energy did the frictional force "take away" from the system (neg. work)?

   e. How large is the frictional force?

   f. What is the coefficient of friction?

W6.06c

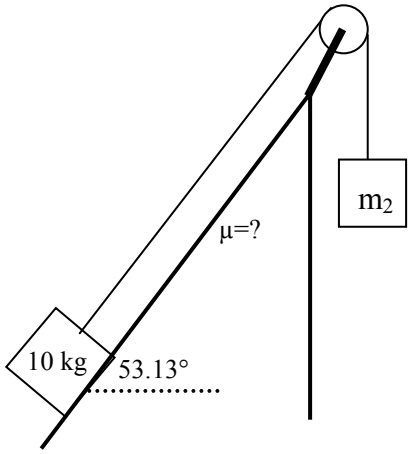
Energy-KEY

Systems

Solve Using Energy Methods

1. The system to the right is released from rest. The instance the suspended mass (m_2=15.8278 kg) has fallen 10 meters, the blocks have speeds of 7 m/s.
   a. How much GPE did the suspended mass "lose", the instance the suspended mass has fallen 10 meters?

      1,582.78 joules



   b. Where did the GPE "lost" go? Note: disregard air resistance.

      "lost" to both KE's, friction, and GPE

   c. What is the KE of each block, the instance the suspended mass has fallen 10 meters?

      $block_{10kg}$=245 joules $block_{15kg}$=387.781 joules

   d. How much energy did the frictional force "take away" from the system (neg. work)?

      150 joules

   e. How large is the frictional force?

      15 N

   f. What is the coefficient of friction?

      0.25