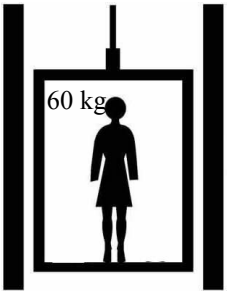
Due Tues., Nov 6

2012 PreAP Forces 11

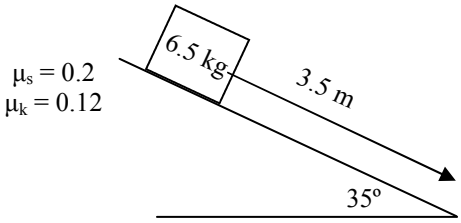


See "Normal Force" notes if you need help.

1. A 60 kg lady is on an elevator and experiences a normal force of 820 N.
   A. * What is the acceleration of the elevator?

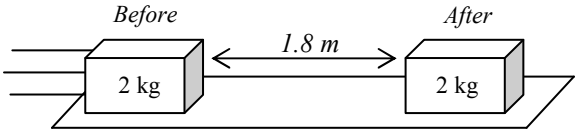
   B. If the elevator is moving down, is it stopping or starting?
   C. If the lady were standing on a bathroom scale, what would it read?

2. Which of the following MUST point in the same direction: mass; net force; velocity; time; force; distance; acceleration.



3. A. If the angle decreases, the force down the ramp:
   B. If the angle increases the normal force:
   C. * Calculate the object's acceleration.

   D. * If the object is 3.5 m up the ramp and starts at rest, how fast is it going at the bottom of the ramp? You do have enough information.



4. A 2 kg box slides to a stop in 0.65 seconds.
   A. * Calculate the acceleration of the object. (*Since you don't have force, use a different equation with acceleration in it.)*

   B. Calculate the force of friction and the coefficient of friction (μ).

5. What force provides the centripetal acceleration for the following situations? These are normal forces we already know.
   A. A car turning a corner.
   B. The earth moving around the sun.
   C. A ball being spun around on a string.
   D. A roller coaster at the bottom of the track.

6. Slim Jim and his go-cart are280kg. He is moving 12 m/s as it moves around a circular track that has a radius of 35m.
   A. Which way does the centripetal acceleration point?
   B. What force provides the centripetal force that keeps the cart moving in the circle?
   C. * Calculate the centripetal acceleration of the cart.

   D. Calculate the force keeping the cart in the circle.

   E. Describe the path of the car after it hits a patch of ice.

1A) 3.7 m/s^2
3C) 4.75m/s^2
3D) 5.77 m/s use a kinematic equation
4A) $-0.85 m/s^2$
7C) 4.1 m/s^2