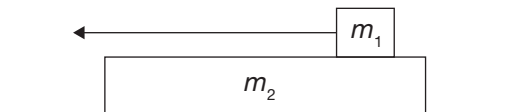# AP Physics 1 Review Questions

Integrating Content, Inquiry and Reasoning

1. A box of mass m_1 = 2.5 kg rests atop a box of mass m_2 = 3.0 kg. Box m_2 rests on a frictionless surface. Box m_1 is pulled by a 95 N force and slides with friction (μ_k = 0.33) across the top of box m_2. What is the acceleration of box m_2?

2. A cardboard box with a mass of 10.0 kg is at rest on a ramp with an angle of 25°.

   a. Determine the coefficient of static friction between the box and the ramp.

   b. A 68.0 N force is applied parallel to the ramp causing the box to move up the incline at a constant velocity. Calculate the coefficient of kinetic friction between the box and the ramp.

3. A box of mass m = 10.25 kg is at rest on a rough floor. The coefficient of static friction between the box and the floor is μ_s = 0.35. A rope is attached to the box and pulled at an upward angle of θ = 30° with a tension of T = 45 N. Does the box move? If so, what is its acceleration?