

## REGENTS PHYSICS PROBLEMS

## FRICTION WORKSHEET A

1. A 65 Newton force applied horizontally is sufficient to draw a 1200 Newton sled on level well-packed snow. What is the coefficient of friction?
2. A hockey puck weighing 1.1 N slides on the ice for 15 m before it stops. (a) If its initial speed was 6.0 m/s, what is the force of friction between the puck and ice? (b) What is the coefficient of friction?
3. A horizontal force of 25 N is applied to a 45 N block, which rests on a horizontal surface. If the coefficient of friction is 0.40, find the acceleration.
4. An automobile traveling at 50 mi/hr (22 m/s) on a level road is stopped by sliding the tires. If the coefficient of friction between the tires and road is 0.75, what is the minimum distance in which the car can be brought to rest? How long will it take?
5. A constant horizontal force of 25 N acting upon a 15 kg block causes it to slide 14.5 m along a level surface. If the block starts from rest and acquires a speed of 4.5 m/s, what is the force of friction? What is the coefficient of friction?
6. An object with a mass of 100 kg moves across a horizontal surface with an acceleration of  $4.0 \text{ m/sec}^2$ .
  - a. What is the net force acting on the object?
  - b. If the force that was applied to the object was 500 N, what must the frictional force have been?
  - c. What is the coefficient of friction?
7. A 20 kg box rests on the flat floor of a truck. The coefficient of friction between box and floor is 0.10. The truck accelerates away from a stop sign at  $2.0 \text{ m/sec}^2$ . If the box is 5 m from the rear of the truck when it starts, how much time elapses before it falls off the rear of the truck? How far does the truck travel in this time?
8. An object is given an initial speed of 3.0 m/s on level ice and comes to rest in 30 m. What is the coefficient of friction?