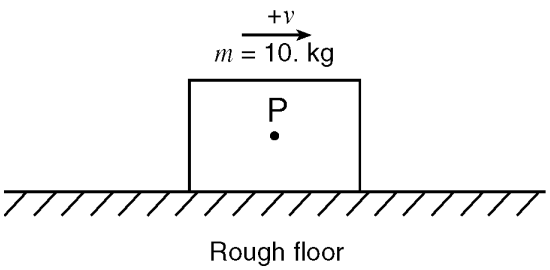
**Name** **Part 2 Review E**

1. A $1000$-kilogram car traveling due east at $15$ meters per second is hit from behind and receives a forward impulse of $6000$ newton-seconds. Determine the magnitude of the car's change in momentum due to this impulse.

Base your answers to questions **2** through **4** on the information and diagram below.

A $10.$-kilogram box, sliding to the right across a rough horizontal floor, accelerates at $-2.0$ meters per second$^2$ due to the force of friction.




2. Calculate the coefficient of kinetic friction between the box and the floor. [Show all work, including the equation and substitution with units.]

3. On the diagram provided, draw a vector representing the net force acting on the box. Begin the vector at point *P* and use a scale of 1.0 centimeter = 5.0 newtons.

4. Calculate the magnitude of the net force acting on the box. [Show all work, including the equation and substitution with units.]

5. The gravitational force of attraction between Earth and the Sun is $3.52 \times 10^{22}$ newtons. Calculate the mass of the Sun. [Show all work, including the equation and substitution with units.]

# Part 2 Review E

Base your answers to questions **6** and **7** on the information below.

A car traveling at a speed of $13$ meters per second accelerates uniformly to a speed of $25$ meters per second in $5.0$ seconds.

6. A truck traveling at a constant speed covers the same total distance as the car in the same $5.0$-second time interval. Determine the speed of the truck.

7. Calculate the magnitude of the acceleration of the car during this $5.0$-second time interval. [Show all work, including the equation and substitution with units.]