

Name:

3.3 Friction Worksheet

1. A 80.0 kg table is pushed across the floor with a force of 500 N. If the coefficient of kinetic friction is 0.40, what is the acceleration of the table?

2. A 0.50 kg book is pushed across a table from rest. If the book does not move until more than 3.25 N of force is applied, what is the coefficient of static friction?

3. A 150 kg refrigerator is pushed at a constant velocity across a floor. If the coefficient of kinetic friction is 0.55, determine the applied force.

4. The coefficient of static friction between a 5.0 kg cardboard box and a tiled floor is 0.30. The coefficient of kinetic friction between the same two surfaces is 0.23.
 - a) How much force is required to move the box from rest?

 - b) How much force is required to move the box at a constant velocity?

5. Sophia is sliding a cone on the ice with a force of 15 N. If the coefficient of friction is 0.18 and the acceleration of the cone is 1.2 m/s^2 , what is the mass of the cone?
6. Matthew wants to push a 12.0 kg chair to his desk. The coefficient of kinetic friction is 0.45.
- a) If Matthew pushes the chair with a force of 120 N, determine the acceleration of the chair?
 - b) As Matthew continues to push the chair with a 120 N force, his classmate Luke applies a 45 N force in the opposite direction. What is the acceleration of the chair now?
 - c) Instead, Luke decides to apply a 45 N force downwards. Determine the acceleration of the chair. (Hint: be sure to determine F_N first).
7. A car is moving at speed of 80 km/h. If the coefficient of kinetic friction between the tires and the road is 0.80, determine how long the car takes to stop when it slams on the brakes.