

Name: _____

Date: _____ Block: _____

Friction Problems

1. What is the force due to friction for an object that has a Normal force of 25 N and is pushed along a surface with a friction coefficient of .42?
2. What is the force due to friction for an object that has a mass of 15 kg and is pushed along a surface with a friction coefficient of .27?
3. A person pushes a 57-kg refrigerator with a horizontal force of -267 N; the minus sign indicates that the force is directed along the $-x$ direction. The coefficient of static friction is 0.65. If the refrigerator does not move, what is the magnitude and direction of the static frictional force that the floor exerts on the refrigerator?
4. Sara pushes a 45 kg box across the floor with a force of 280 N. The coefficient of friction between the box and the floor is 0.60. What is the acceleration of the box?
5. A 52 N sled is pulled across a cement sidewalk at a constant speed. A horizontal force of 36 N is exerted. What is the coefficient of kinetic friction between the sidewalk and the metal runners of the sled?

6. Suppose the sled from #6 now runs on packed snow. The coefficient of friction is now only 0.12. If a person weighing 650 N sits on the sled, what force is needed to slide the sled across the snow at constant speed?
7. Lee Mealone is sledding with his friends when he becomes disgruntled by one of his friend's comments. He exerts a rightward force of 9.13 N on his 4.68-kg sled to accelerate it across the snow. If the acceleration of the sled is 0.815 m/s/s, then what is the coefficient of friction between the sled and the snow?
8. In a Physics lab, Ernesto and Amanda apply a 34.5 N rightward force to a 4.52-kg cart to accelerate it across a horizontal surface at a rate of 1.28 m/s/s. Determine the friction force acting upon the cart.
9. Alejandra is attempting to drag her 32.6-kg Golden Retriever across the wooden floor by applying a horizontal force. What force must she apply to move the dog with a constant speed of 0.95 m/s? The coefficient of friction between the dog and the floor is 0.72.
10. The coefficient of friction between the wheels of Dawson's 1985 Ford Coupe and the dry pavement is 0.85. Determine the acceleration which the 1300-kg Coupe experiences while skidding to a stop.