

Homework Assignment #2

Chapter 3

(Please typewrite your homework.)

1. A crate is pushed across a horizontal floor at constant speed by a horizontal force of 140 N, which is just enough to overcome the friction between the crate and the floor.
 - (a) How much work is done in pushing the crate through 10 m?
 - (b) Rollers are then used under the crate to reduce friction and the same force is applied over the next 10 m. What happens to the work done now?
 - (c) Will there be any change in the speed of the crate?
2. An 800-kg car is moving and its kinetic energy is 250 kJ. What is the speed of this car?
3. A 3-kg stone is dropped from a height of 100 m.
 - (a) What are its kinetic and potential energies when it is halfway to the ground?
 - (b) What is the speed of the stone just before it hits the ground?
4. A boy throws a 4-kg pumpkin at 8 m/s to a 40-kg girl on roller skate, who catches it. At what speed does the girl then move backward?