

**PHY151H1F – Practice Problem Set 8****Ch. 10, Q. 61**

Disk 1 (of inertia  $m$ ) slides with speed  $1.0 \text{ m/s}$  across a low-friction surface and collides with disk 2 (of inertia  $2m$ ) originally at rest. Disk 1 is observed to bounce off at an angle of  $15^\circ$  to its original line of motion, while disk 2 moves away from the impact at an angle of  $55^\circ$ . (a) Calculate the unknown final speed of each disk. (b) Is this collision elastic? ●●

**Ch. 10, Q. 72**

You are unloading a refrigerator from a delivery van. The ramp on the van is  $5.0 \text{ m}$  long, and its top end is  $1.4 \text{ m}$  above the ground. As the refrigerator moves down the ramp, you are on the down side of the ramp trying to slow the motion by pushing horizontally against the refrigerator with a force of  $300 \text{ N}$ . How much work do you do on the refrigerator during its trip down the ramp? ●●

**Ch. 10, Q. 87**

The coefficient of kinetic friction between tires and dry pavement is about  $0.80$ . Assume that while traveling at  $27 \text{ m/s}$  you lock your brakes and as a result the only horizontal force on the car is the frictional one. (a) How many seconds does it take you to bring your car to a stop? (b) If the road is wet and the coefficient of kinetic friction between tires and pavement is only  $0.25$ , how long does it take? (c) How far do you travel in this time interval? ●●

**If you have free time and have completed all three of the questions on the front : Ch. 10, Q. 106**

Having seen in *Principles* **Example 10.6** that there is a simple expression for the horizontal range of a projectile across level ground, you begin to wonder whether there is an expression for the horizontal range of an object that is thrown with initial speed  $v_i$  at an angle  $\theta$  above the horizontal from the edge of a cliff of height  $h$ . ●●● **CR**