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Chapter 8

A 5.00-kg block is set into motion up an inclined plane with an initial speed of vi = 8.00 m/s (Fig. P8.23). The block comes to rest after traveling d = 3.00 m along the plane, which is inclined at an angle of  $\theta = 30.0^{\circ}$  to the horizontal. For this motion, determine (a) the change in the block's kinetic energy, (b) the change in the potential energy of the block-Earth system, and (c) the friction force exerted on the block (assumed to be constant). (d) What is the coefficient of kinetic friction? Ans:



## Figure P8.23

Chapter 9

The front 1.20 m of a 1 400-kg car is designed as a "crumple zone" that collapses to absorb the shock of a collision. If a car traveling 25.0 m/s stops uniformly in 1.20 m, (a) how long does the collision last, (b) what is the magnitude of the average force on the car, and (c) what is the acceleration of the car? Express the acceleration as a multiple of the acceleration due to gravity. Ans:

Chapter 10 Find the net torque on the wheel in Figure P10.27 about the axle through *O*, taking a = 10.0 cm and b = 25.0 cm.



Figure P10.27