Problems from Chapter-8  GPE =  EPE = 

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P15: In Fig. [8-33](http://edugen.wiley.com/edugen/courses/crs4957/halliday9118/halliday9118c08/halliday9118/halliday9118c08/halliday9118c08xlinks.xform?id=halliday9118c08-fig-0033), a runaway truck with failed brakes is moving downgrade at 130 km/h just before the driver steers the truck up a frictionless emergency escape ramp with an inclination of *θ* = 15°. The truck's mass is 1.2 × 104 kg. (a) What minimum length *L* must the ramp have if the truck is to stop (momentarily) along it? (Assume the truck is a particle, and justify that assumption.) Does the minimum length *L* increase, decrease, or remain the same if (b) the truck's mass is decreased and (c) its speed is decreased?

P47: A 75 g Frisbee is thrown from a point 1.1 m above the ground with a speed of 12 m/s. When it has reached a height of 2.1 m, its speed is 10.5 m/s. What was the reduction in of the Frisbee–Earth system because of air drag?

P109: A 60.0 kg circus performer slides 4.00 m down a pole to the circus floor, starting from rest. What is the kinetic energy of the performer as she reaches the floor if the frictional force on her from the pole (a) is negligible (she will be hurt) and (b) has a magnitude of 500 N?

P22: A 60 kg skier starts from rest at height *H* = 20 m above the end of a ski-jump ramp (Fig. [8-35](http://edugen.wiley.com/edugen/courses/crs4957/halliday9118/halliday9118c08/halliday9118/halliday9118c08/halliday9118c08xlinks.xform?id=halliday9118c08-fig-0035)) and leaves the ramp at angle *θ* = 28°. Neglect the effects of air resistance and assume the ramp is frictionless. (a) What is the maximum height *h* of his jump above the end of the ramp? (b) If he increased his weight by putting on a backpack, would *h* then be greater, less, or the same?


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