

Section

10-2**HOLT PHYSICS****Concept Review***Defining Heat*

1. A 1.000×10^3 kg car is moving at 90.0 km/hr (25.0 m/s) as it exits a freeway. The driver brakes to meet the speed limit of 36.0 km/hr (10.0 m/s).

a. What was the car's kinetic energy on the freeway?

b. What is its kinetic energy after slowing down?

c. Did the internal energy of the car, road, and air increase or decrease in this process? By how much?

d. Was work done by the car brakes and other friction forces in the process? How much?

2. A 2.00×10^2 kg sled is sliding downhill at a constant speed of 5.00 m/s until it passes a tree 20.0 m down.

a. What was the potential energy associated with the sled and the sled's kinetic energy and total mechanical energy at the top of the hill?

b. What were these energies at the bottom of the hill?

c. What was the change in the sled's total energy?

d. What was the change in the internal energy of the sled and its environment? How might that change be observed in the snow?
