Name: Date: Period:

Free-Body Diagrams & Single-Body Force Problems

1. For each of the sketches below, identify all the forces applied on all objects and draw a free body diagram. Then come up with an expression for the net force.

   (a) Lamp hanging from a chain

   (b) A car moving at a constant speed.

   (c) A car accelerating

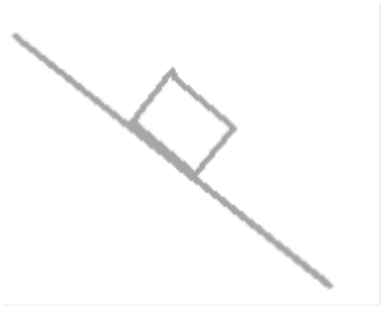
   (d) A box being pushed forward on the ground (constant speed)

   (e) A skydiver before opening her parachute

   (f) Object sliding down an inclined plane.

2. Neal is stealing a refrigerator from the bank. The mass of the refrigerator is 173 kg and its kinetic friction has a magnitude of 254 N. How hard must he push it forward in order to accelerate it at 1.27 m/s^2?

3. Joe pulls up on a rope attached to a 5.5-kg bucket. The bucket accelerates at 2.1 m/s^2. With what force did Joe pull?