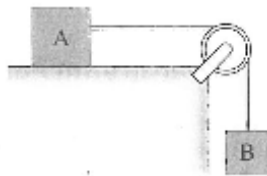


Following the four-step procedure outlined in your notes, identify the system and forces acting on the system in the following situations. Unless indicated otherwise, ignore drag forces.

1. An elevator suspended by a cable is descending at constant velocity.
2. A car on a very slippery icy road is sliding headfirst into a snowbank, where it gently comes to rest with no one injured. (Hint: What does “very slippery” imply?)
3. A compressed spring is pushing a block across a rough horizontal table.
4. A brick is falling from the roof of a three-story building.
5. Blocks A and B are connected by a string passing over a pulley. Block B is falling and dragging block A across a frictionless table. Analyze Block A.



6. A rocket is launched at a 30-degree angle. Air resistance is not negligible (i.e. you can't neglect it this time).

Identifying Forces

7. A heavy crate is being lowered straight down at a constant speed by a steel cable.

8. A girl is pushing a box across the floor at a steadily increasing speed. Analyze the box.

9. A bicycle is speeding up down a hill. Friction is negligible, but air drag is not.

10. You've slammed on your car brakes while going down a hill. You're skidding to a halt.