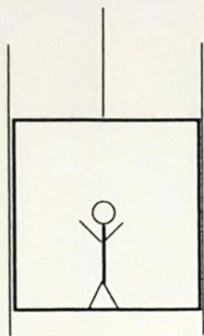


Elevator Problem Solving

1. An elevator is moving up at a constant velocity of 2.5 m/s , as illustrated in the diagram below: The man has a mass of 85.0 kg .



- a. Construct a force diagram for the man.
- b. What is the normal force on the man?

2. The elevator now accelerates upward at 2.0 m/s^2 .

- a. Construct a force diagram for the man.
- b. What force does the floor now exert on the man?

3. Upon reaching the top of the building, the elevator accelerates downward at 3.0 m/s^2 .

- a. Construct a force diagram for the man.
 - b. What force does the floor now exert on the man?
4. While descending in the elevator, the cable suddenly breaks. What is the force of the floor on the man?

5. Consider the situation where a person that has a mass of 68 kg is descending in an elevator at a constant velocity of 4.0 m/s . After some time, the elevator slows to a stop at the rate of 2.0 m/s^2 .

If the person in the elevator were standing on a bathroom scale calibrated in Newtons, what would the scale read while the elevator is:

(a) Descending at constant speed. Explain.

(b) Slowing to a stop? Explain.