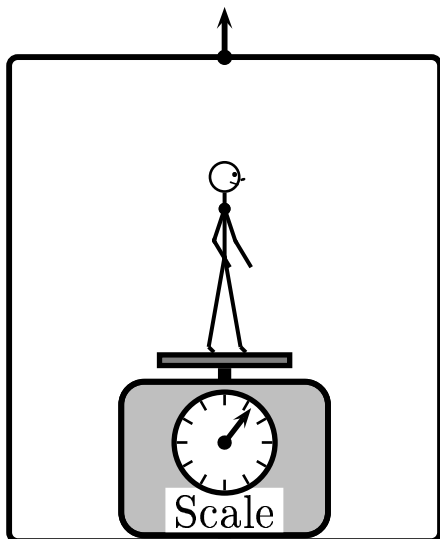


Consider an elevator which is moving upward with a velocity v . It is decelerating; *i.e.*, the acceleration is pointing downward.



The “coordinate-frame” of the elevator is a non-inertial frame.

The magnitude and the direction of the fictitious force in this non-inertial frame are given by

- A) $F = |m a|$ and is directed upward.
- B) $F = |m a|$ and is directed downward.
- C) $F = |m g|$ and is directed upward.
- D) $F = |m g|$ and is directed downward.

In the inertial frame, we have $m g - F_{scale} = m a$.

The fictitious force is “ $- m a$.”

So the magnitude of the fictitious force in the elevator frame is $| m a |$, and it is pointing upward.

Taking into account this fictitious force the rider exerts less force on the scale. In other words, the rider feels lighter.

Answer B.

06.03-02 Revisit The Elevator Problem 2004-3-24