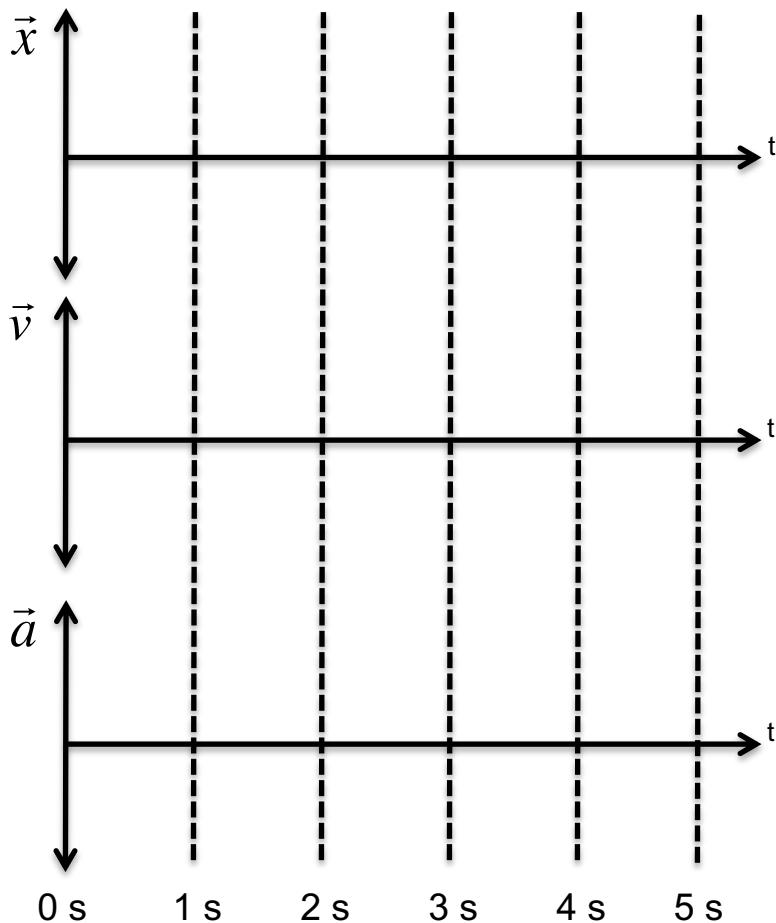


MT#1 121, W2019, Schwartz

You will be graded on your communication of physics understanding.

#1 I step into an elevator at rest on the ground floor. It accelerates upward at 4 m/s^2 for 1 s, continues at constant speed for 2 s, and then comes to rest over a 2 s period. Please graph the elevator's motion over this 5 s period. Please label the correct values throughout. Record relevant discussion and calculations below.



#2 In the problem above, my mass is 100 kg, and the rest of the elevator's mass is 900 kg. I am standing on a scale. What does the scale read at 3.5 s?

#3 In the problem above, what is the average power put out by the elevator's motor over the first two seconds of operation?

#4 A 1 kg block sits on a concrete surface. You fire a 5g bullet at a speed of 1000 m/s, which embeds itself into the block. The block slides 2 meters across the concrete surface before coming to rest. Please find the coefficient of friction between the block and the concrete surface.

Name _____