A person of mass mp stands on a scale in an elevator of mass me . The scale reads the magnitude of the force F exerted on it from above in a downward direction. Starting at rest at t=0 the elevator moves upward, coming to rest again at time t=t0. The downward acceleration of gravity is g. The acceleration of the elevator during this period is shown graphically above and is given analytically by



ay(t) = α – 2αt0 /t

a) Find the maximum speed of the elevator. Express your answer in terms of α and t0

vy,max =

b) Find the total distance traveled by the elevator. Express your answer in terms of α and t0

y(t0)=