Physics 1A
Spring 2015

Challenge Problem 2

An elevator is on the ground at $t = 0$. It ascends from the ground with uniform speed. At time t_d (the "drop time") a boy drops a marble through the floor. The marble falls with uniform acceleration g and hits the ground an amount of time T later.

(a) Find the height of the elevator at the drop time t_d.

(b) On physical grounds, what would you expect your answer to be in the limit $T/t_d \to 0$. Why?

(c) Does your expectation of what would happen from part (b) match your mathematical answer from part (a)?