

## Problem 1.18

*Elevator and falling marble*

At  $t = 0$ , an elevator departs from the ground with uniform speed. At time  $T_1$  a child drops a marble through the floor. The marble falls with uniform acceleration  $g = 9.8 \text{ m/s}^2$ , and hits the ground  $T_2$  seconds later. Find the height of the elevator at time  $T_1$ .