Problem 1. A ball is launched straight upwards from the ground with a velocity of 48 feet per second. It’s height (ft.) at time \( t \) (sec.) is given by \( h(t) = 48t - 16t^2 \).

i. Find the average velocity of the ball over the first second of flight.

ii. Using the methods described in class, i.e., without using derivatives (or your “physics formulas,” which arise from the derivative), determine the ball’s velocity at time \( t = 1 \) second.

iii. Supposing \( t \neq 1 \), simplify the expression \( \frac{h(1) - h(t)}{1 - t} \). What do you get when you plug \( t = 1 \) into this simplified expression?