First Name _____ Last Name _____ Date ___ – ___ – ___ Period _____ Score _____

Targets.

- to calculate the average velocity over a time interval, given the position

- to numerically determine the limit of the average velocity as the time interval getting shorter

Do Now.
Is the free falling motion of uniform velocity? How can you experimentally verify your claim? **Concepts.**

- Average Velocity

Problems.
Let t be the time, and $p(t) = -16t^2 + 100$ be the position of an object dropped from 100 feet above the ground. Calculate the average velocity over the time interval $[2, 2 + \Delta t]$ for various Δt. Complete the table below.

Δt	$\bar{v}$
0.1	
0.01	
0.001	
0.0001	
0.00001	

Discussion.
Does the average velocity in the table above seem to stably approach a specific number? What number would that be?

Exit Ticket.
Suppose the position of an object over time is given by $p(t) = \sin(t)$.[1] Find the average velocity over the time interval $[0, \pi/2]$.

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[1]This type of motion is frequently seen in real life, too. For example, the oscillatory motion of a ball attached to a spring.