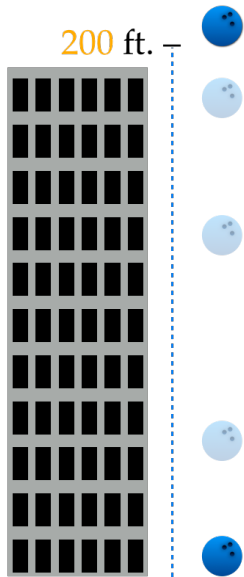


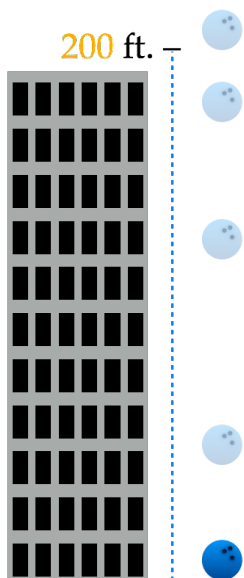
Average Velocity vs. Instantaneous Velocity

Name _____

Date _____ Period _____



A bowling ball is dropped from a height of 200 ft.
 Its height s at time t is given by $s(t) = -16t^2 + 200$.

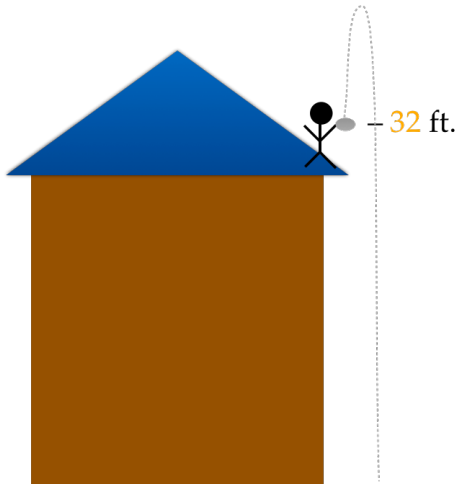


A bowling ball is dropped from a height of 200 ft.
 Its height s at time t is given by $s(t) = -16t^2 + 200$.

What is the instantaneous velocity of the
 bowling ball at $t = 1$?

A coin is flipped off a roof 32 ft above the ground.
The height of the coin is given by $s(t) = -16t^2 + 16t + 32$.

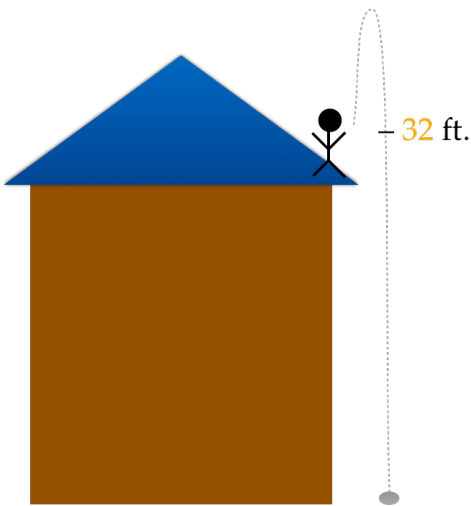
What is the coin's height at $t = 1$ and $t = 1.5$?



What is the coin's velocity at $t = 1$ and $t = 1.5$?

A coin is flipped off a roof 32 ft above the ground.
The height of the coin is given by $s(t) = -16t^2 + 16t + 32$.

When does the coin hit the ground?



What is the coin's velocity when it hits the ground?

Instantaneous velocity at time t

$$V(t) = s'(t)$$

Instantaneous velocity is the derivative of
the position function.