

Free Fall Equations ... Set 3

2.) A silver dollar is dropped from a building that is 1,362 feet in height. Time is represented in seconds

a.) What are the silver's dollar's height, velocity, and acceleration functions?

b.) When does the silver dollar hit the ground and what is its impact velocity?

c.) How far does the silver dollar travel between $t = 1$ second and $t = 2$ seconds?

3.) The displacement in feet of a body of water moving along a line at any time t in seconds is given by

$$s(t) = t^3 - 6t^2 + 9t + 5$$

a.) What are the velocity and acceleration functions?

b.) Find the total distance traveled from $t = 0$ seconds to $t = 4$ seconds.

c.) What is the velocity of the body when the position is 8 feet?

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- 4.) A projectile is launched from the top of a 117.6 meter building. Its initial velocity was $49 \frac{\text{m}}{\text{sec}}$.
- What are the projectile's height, velocity, and acceleration functions?
 - When is the projectile at its maximum height and what is the maximum height?
 - When does the projectile hit the ground and what is its impact velocity?
- 5.) An object has its position defined in feet by $s(t) = t^3 - 9t^2 + 24t + 20$, where t is time in seconds.
- What are the velocity and acceleration functions?
 - What is the total distance traveled by the object during the first eight seconds?
 - What is the displacement of the object after the first eight seconds?

