Objects Thrown Into the Air

1

From the lab…

- **Gravity acts on all falling (<u>and rising</u>) objects.**
- **Down is considered to be in the negative direction. Up is positive.**
- **Acceleration due to gravity is _____ .**
- **The size of the initial and final velocities of the object are the same but are _____ in direction. (initial = positive, final = negative)**
- **The velocity at the top of its motion is _____.**
- **It take the _____ amount of time to go up as it does to come back down.**

2

The Equations

- **When acceleration is constant, we can find other information about the object's motion using the following equations:**

$$v = v_o + at \qquad v^2 = v_0^2 + 2a\Delta x$$

$$\Delta x = v_o t + \frac{1}{2} a t^2$$

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Practice Problem #1

- **You throw a stone into the air with a velocity of 18.0 m/s.**
  - **What is the maximum height that the stone reaches?**
  - **How long does it take to hit the ground?**

	End	Max. Height
V		
V_o		
a		
t		
Δx		

4

Practice Problem #2

- **A shirt is shot straight up out of a t-shirt cannon. It reaches a maximum height of 15 m.**
  - **What is the velocity of the shirt as it comes out of the cannon?**
  - **How long does it take for the shirt to hit the ground?**

	End	Max. Height
V		
V_o		
a		
t		
Δx		

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