Mr. Hie’s Summary of Constant Motion

# Constant Motion

For motion in one direction at a constant speed there are several quantities that are important.

**Distance, Δd**: How far the object moved.

**Time, Δt:** How long it took the object to move.

**Speed or Velocity, v:** Speed is the rate the distance changes. It’s how fast the object moves. Velocity is very similar but considers direction. For example, -3m/s could be a velocity meaning the motion is to the left. Technically, speed can only be positive but don’t expect people to always use those words in a precise way.

They are all related using the equation: **Distance = Speed\*Time** or **Δd = v\*Δt.**

If you know two of the quantities you can always use algebra to solve for the other.

**Example:**

Before the apocalypse, Mr. Hie figured out how fast he walked by timing himself to class. It took him 15 minutes and that he walked at 4mph. How far did he walk?

*This problem is looking for distance because it asks how far he walked so we are trying to find Δd. We know the speed is 3.5mph and the time is 15 minutes. If the speed is in miles per HOUR and the time is in MINUTES we need to convert something so they match before we can calculate.*

*Δd = ?*

*v = 3.5 mph*

*Δt = 15 minutes = 0.25 hrs.*

*Δd = v\*Δt*

*Δd = 3.5\*0.25*

*Δd = 0.875 miles*

*His class was a distance of 0.875 miles away, a little less than a mile.*