

Velocity = Displacement/time

**Review Displacement, distance,
Velocity, speed, and position
equations**

Displacement

- Displacement = $x(\text{final}) - x(\text{initial})$
- Need frame of reference for positive motion, negative motion, zero.
- Usually in meters
- Direction component

$$V = D/t$$

- Velocity = Displacement/time
- Velocity is the slope of displacement/position versus time.
 - Positive slope (up and to the right) means motion in the positive direction
 - Negative slope (up and to the left) means motion in the negative direction
 - Zero slope = flat = horizontal line means no motion

Distance

- Distance = total path traveled
- Speed = distance/time
- Scalar quantity in m/s with no direction

Linear Equations

- General Form: $y = mx + b$
 - m = slope of the line
 - B = y intercept (position at zero time)
- Position = (Velocity)(time) + $X(\text{initial})$
- Position = (D/time)(time) + $X(\text{initial})$

Simultaneous Equations

- Given position = (Velocity)(time) + X(initial)
- Two vehicles meet each other at the same position. Set their position equations equal to each other and then solve for time.
- Use the time in one of the two equations to find the position where the objects meet.