


SPEED VS VELOCITY

pp 320-323


Speed

- How fast an object moves
- Speed tells us nothing about direction
- speed = distance/time
- Speed is related to motion not displacement
- Speed can be average or instantaneous
- Works like you think it works

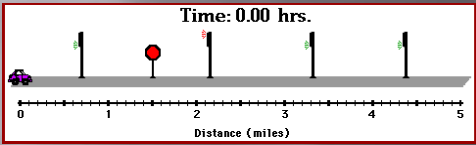


Speed

- Units are distance over time
- Miles per hour = mph = m/h
- Kilometers per hour = kph = km/h
- Meters per second = m/s



Average Speed




Ave. Speed = $\frac{5 \text{ miles}}{0.2 \text{ hours}} = 25 \text{ miles/hour}$

INSTANTANEOUS SPEED


The speed of an object at a given point in time.

Instantaneous Speed



Velocity


- Velocity measures both speed and direction
- Velocity always has a direction
- Can be average or instantaneous
- Same units as speed




Speed vs Velocity

- Speed = $v = (x_2 - x_1)/(t_2 - t_1) = d/t$
- Velocity = $\vec{v} = (x_2 - x_1)/(t_2 - t_1) = d/t$
 - Always include direction!


Does it measure speed or velocity?



Does it measure speed or velocity?



Does it measure speed or velocity?



GPS RECEIVER

40° 59' 48.7" N
28° 59' 48.4" E

Speed: 13.2 kts Course: 5.8°