

Announcements:

- Inflatable structures are going away today!
- Last day to turn in A⁺CAD drawings for derby racer is Wed. 11/9 (no more class time!)
- Contracts, syllabi & safety glasses are required as of NOW. (Safety tests too..)

Motion:

distance - total length of the path of a moving object

displacement - shortest length between an object's start and end - includes a direction

speed - the distance an object travels in a certain amount of time

velocity - the displacement of an object in a certain amount of time - includes a direction

acceleration - rate of change in an object's velocity

Speed

- distance
- no direction

$$\text{speed} = \text{distance} \div \text{time}$$

(usually $\frac{\text{meters}}{\text{second}}$)

$$S = \frac{d}{t}$$

units $\rightarrow \frac{m}{s}$

velocity

- displacement
- includes direction

$$\text{velocity} = \text{displacement} \div \text{time}$$

(usually $\frac{\text{meters}}{\text{second}}$) \rightarrow + direction

$$V = \frac{d}{t}$$

units $\rightarrow \frac{m}{s}$ (+ direction)

Bregar drives 400 meters north
(straight line) in 80 seconds.
What is his velocity?

$$d = 400 \text{ m North}$$

$$t = 80 \text{ s}$$

$$v = ?$$

$$v = \frac{d}{t}$$

$$v = \frac{400}{80} = 5 \frac{\text{m}}{\text{s}} \text{ North}$$

$$v = \frac{d}{t}$$

$$80 \cdot 5 = \frac{d}{80} \cdot 80$$

$$400 = d \checkmark$$