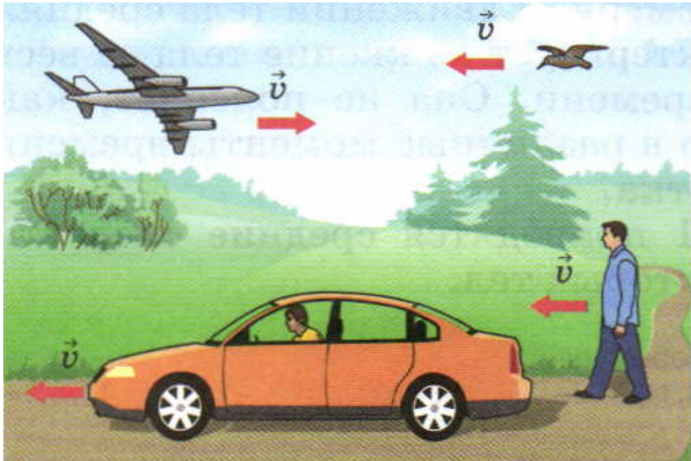


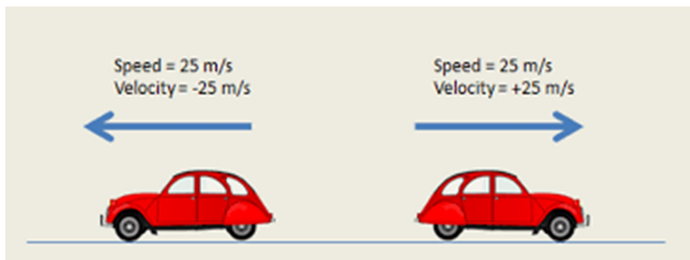
Mechanical motion.

The changing of the position of the body related to other bodies as the time goes is called *mechanical motion*.

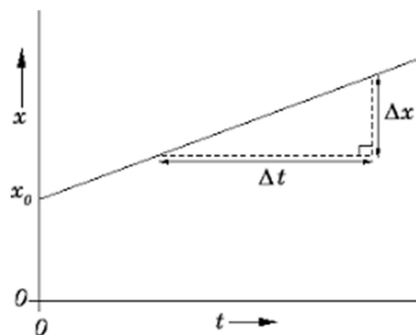


Velocity.

Velocity has direction. Speed is just a number.



Moments of Math: Linear functions and their graphs.



$$v = \frac{\Delta x}{\Delta t}$$

$$\vec{v} = \frac{\Delta \vec{x}}{\Delta t}$$

Typical Velocities, m/s

1 mile/hour	0.447
Snail	0.0014
Turtle	0.05 - 0.14
Fly	5
Pedestrian	1.3
Skater	up to 13
Ostrich	22
Passanger domestic plane	230
Moon orbiting around Earth	1,000
Molecule of Hydrogen (at 0°C)	1,693
Molecule of Hydrogen (at 25°C)	1,770
Satellite	8,000
Earth around Sun	30,000
Light and radio waves	299,792,458

**Homework problems. Velocity.**

- (1) Race car travels 50 km in 10 minutes. What is its average speed?
- (2) Skier slides down the 50 meter long hill in 5 seconds. Then he continues to move horizontally until he stops, traveling 30 meters more in 15 seconds. Find skier's average velocity over the whole travel distance.
- (3) One does not get tired too fast when riding a bike with the speed 3 m/s. How far can he get in 1.5 hours?
- (4) Try to use the graph on the right (which show the dependence of position x from time t) to find velocities of two bodies, I and II. Which one was moving faster?

