

Velocity and Distance-Time Graphs

Chapter 5.1b

TPS: Imagine that 2 birds leave the same tree at the same time. They both fly at 10 km/hr for 5 minutes, but they do not end up in the same tree. Why?

I. Velocity: Direction Matters

Velocity: Describes both the speed and direction of an object.

Ex. The train's velocity is 120 km/hr north.

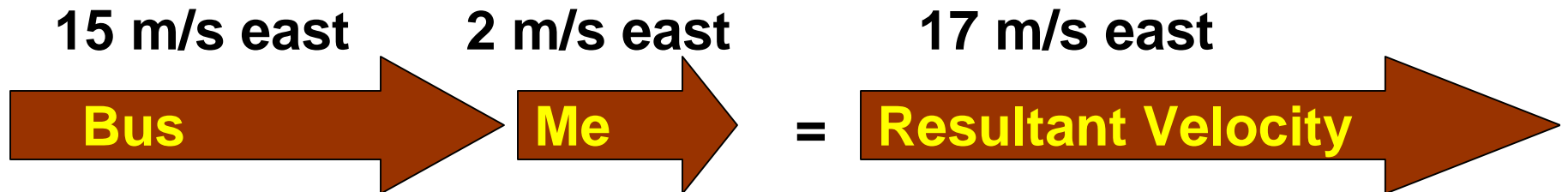
◆ A change in speed or direction results in a change in velocity.

TPS: Suppose that you are riding on a bus that has a velocity of 15 m/s east. What would be your velocity if you ran toward the front of the bus at 2 m/sec?

Combining Velocities

Resultant Velocity: When two or more velocities are combined into one velocity.

Bus Example:



II. Distance-Time Graphs

Slope =



II. Distance-Time Graphs

$$\text{Average Speed} = \frac{\Delta \text{Distance}}{\Delta \text{Time}} =$$



Self-Check

1. How are speed and velocity similar?
2. How are speed and velocity different?
3. Suppose that you are running north at 6 mi/hour on the roof of a train while the train is traveling south at 70 mi/hr. What is your resultant velocity?
4. On a distance-time graph, what does the slope of the line represent?