

## DESCRIBING MOTION:

Scalar:

Vector:

representation of a quantity with both \_\_\_\_\_ and direction

- Arrows are used-  
\_\_\_\_\_ = magnitude

Direction of arrow = direction

When vectors are parallel:

-In the same direction- \_\_\_\_\_

For instance a tailwind:

velocity of the plane + velocity of the wind = total velocity

-In opposite directions- subtract

For instance \_\_\_\_\_:

velocity of the plane - velocity of the wind = velocity of the plane  
(assuming that the plane is not moving backward!)

When vectors are not parallel:

-Use the \_\_\_\_\_ rule to add vectors.

-> You are on one side of a river and want to cross to get to your house that is directly on the other side. If the water is traveling at a velocity of 10 km/hr and you end up traveling 20 km/hr in a straight line to your house, then at what velocity must the boat travel?

Motion: change in \_\_\_\_\_ (depends on the FRAME OF REFERENCE)

River ex.

\_\_\_\_\_ : the length of the path an object travels. Scalar quantity

\_\_\_\_\_ : distance and direction of an objects \_\_\_\_\_ position from its  
\_\_\_\_\_ position

\_\_\_\_\_ : Rate of motion relative to something else (usually the ground)

- \_\_\_\_\_ has to use a speedometer
- \_\_\_\_\_ =

\_\_\_\_\_ : shows the speed and direction.  
Velocity changes when direction changes even when the speed is constant