Position → place of object in physical space
(x)

Distance → scalar quantity for the total path length an object travels
(d)

Displacement → vector quantity for the path length between the starting and stopping locations
($\Delta\vec{x}$)

$$\text{Speed} = \frac{\text{distance}}{\text{time}} \qquad S = \frac{d}{t}$$

(always positive answer)

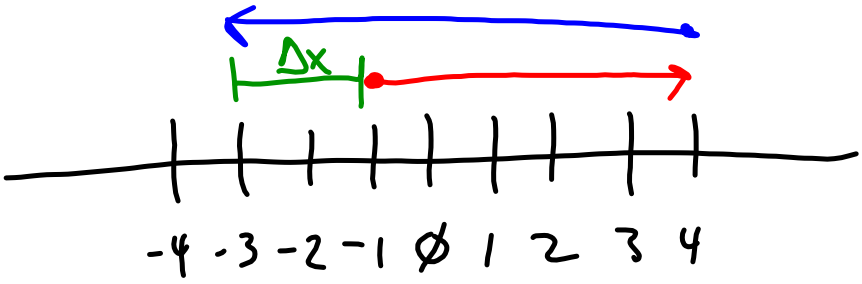
units: m/s

$$\text{Velocity} = \frac{\text{displacement}}{\text{time}} \qquad \bar{v} = \frac{\Delta \bar{x}}{\Delta t}$$

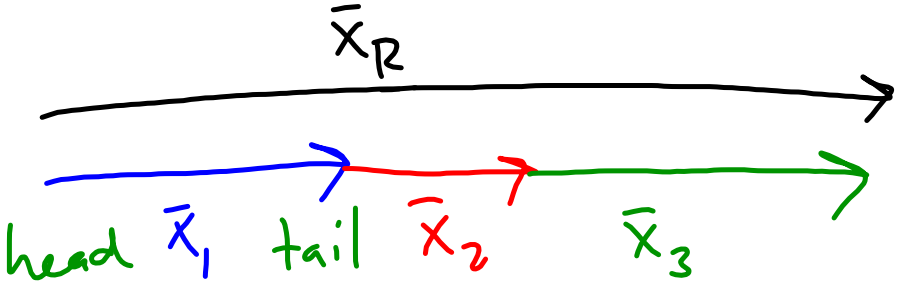
$\vec{V}$

units: m/s

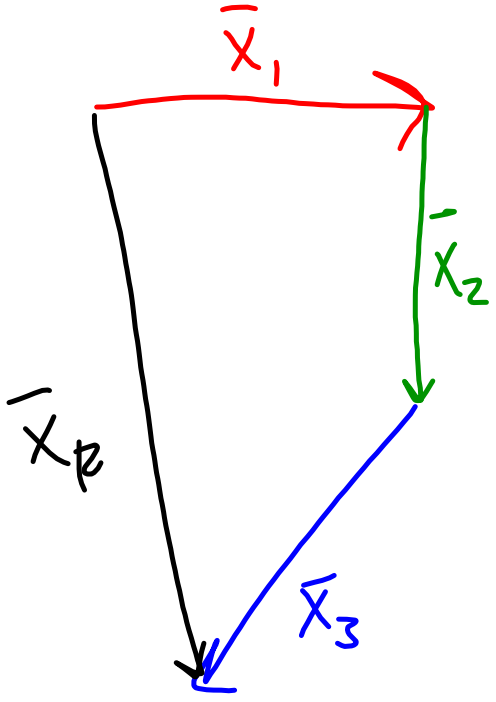
(need a direction → +/− or "label")

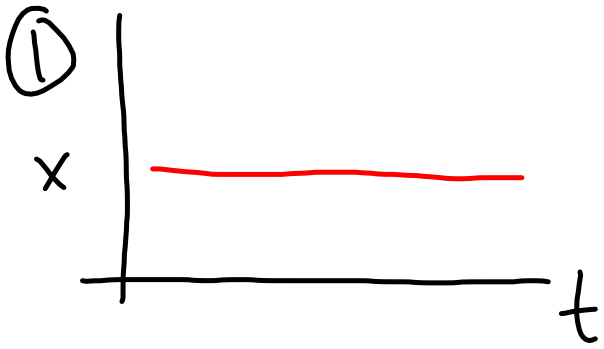


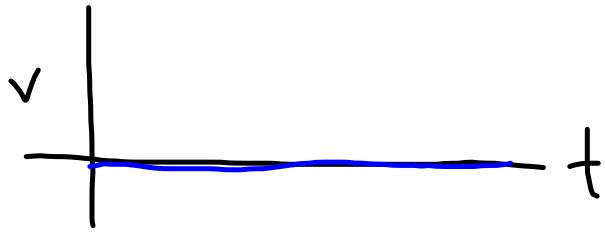
Vector Addition:

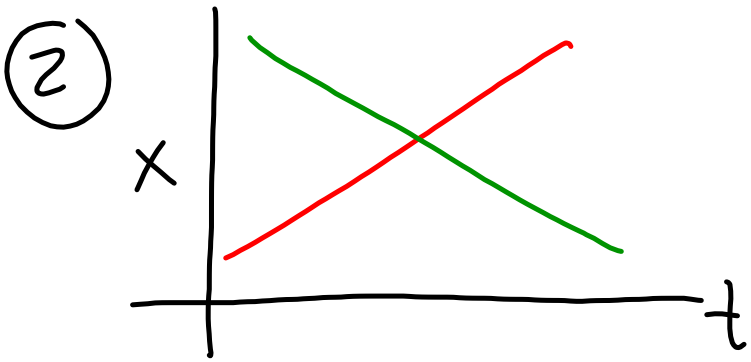


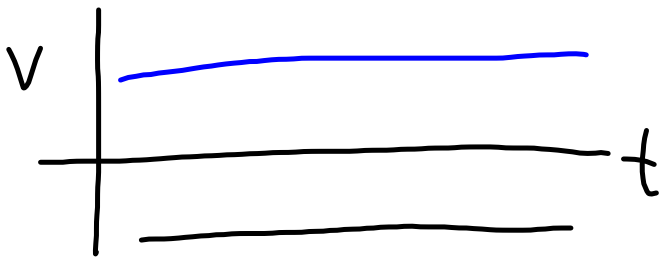
Resultant vector ("answer") → goes from head of first vector to tail of the last vector




1
x
t


v
t


2
x
t


v
t