

Motion Maps and Position-time

- Position \rightarrow location in space
 - Displacement \rightarrow change in position relative to a \emptyset point
(this is a vector quantity)

Vector \rightarrow quantity that has both magnitude and direction

Scalar \rightarrow quantity that only has magnitude

- Distance \rightarrow total path an object traveled (scalar quantity)

- $\text{Speed} = \frac{\text{Distance}}{\text{time}}$ (scalar)
 - $\text{Velocity} = \frac{\text{Displacement}}{\text{time}}$ (vector)
 - Speed is the magnitude of velocity.
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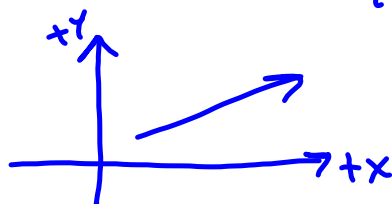
30 m/s north \rightarrow vector
(velocity)

30 m/s \rightarrow scalar (speed)

· Direction

— Compass

— x-y coordinate system



direction:

+x

+y