Conclusive statement: state the relationship

Supporting Data: Max and Min.

State your equation -

explain what X and Y are, OR what d and t are.

Analyze the data: slope

What does your y-intercept represent?

Scientific Explanation: Prediction

Confidence

$\frac{d}{t} = \frac{1.271\ t}{t}$

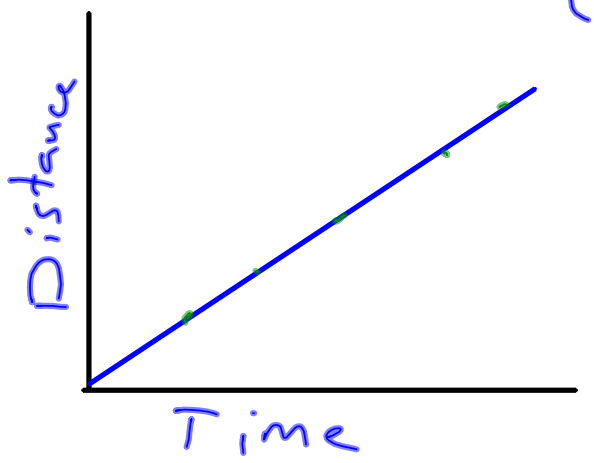
$\frac{d}{t} = 1.271 = \text{Velocity}$

$V = \frac{d}{t}$

$\boxed{V = \frac{d}{t}}$

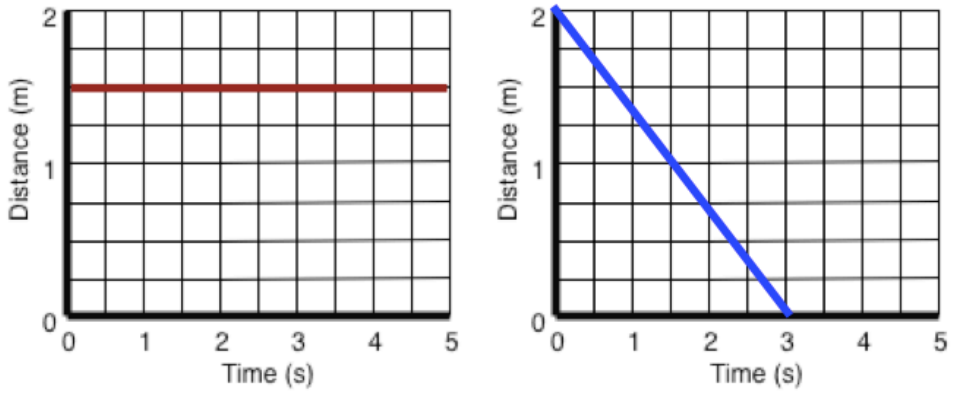
Motion Graphs

Distance vs. time Graphs (Distance Time Graphs)



As time goes on, Ms. Haber gets further from her initial position.

Walk in a straight line, at a constant speed.



Describe the motion of ball displayed in each graph?

staying in the same spot- 1.5 meters

not moving

slope = 0, slope represents the velocity/ speed --> speed = 0

starts at2 m, goes backward to 0m.

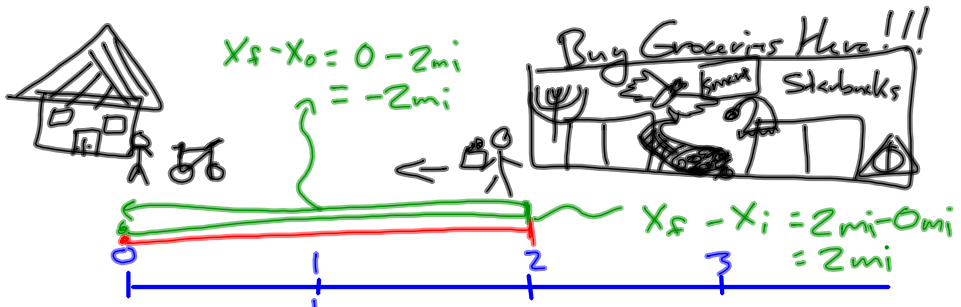
moving at a constant rate - linear

negative slope = negative velocity

Speed Vs. Velocity:

Magnitude — Speed + direction

Distance: how far something travels



we measure the total distance something travels by adding up the segments.

Displacement: change in position

To get to the grocery store you travel 2 miles, your position changes by 2 miles ∴ (therefore) your displacement is 2 miles

When you ride to the grocery store and back you have traveled a distance of (2 miles out + 2 miles back = 4 miles). but your position has not changed ∴ (therefore) your displacement is zero

Speed: rate of motion - a distance traveled divided by the amount of time spent traveling.

$$\text{Speed} = \frac{\text{distance (m)}}{\text{Time (s)}}$$

units: m/s

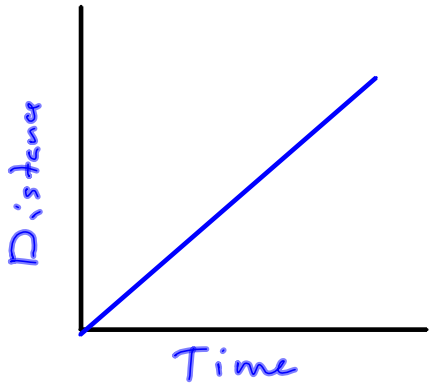
Velocity: the rate at which an object changes position

$$\text{Velocity} = \frac{\text{displacement}}{\text{time}}$$

units: m/s

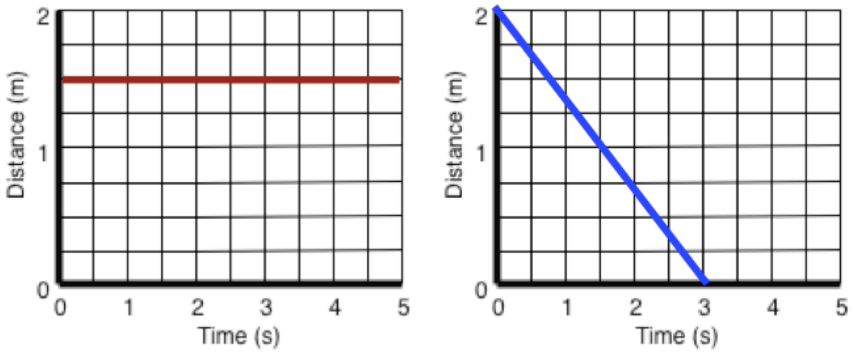
Motion Graphs

Distance time graph



move forward with a constant speed.

slope does not change --> speed/velocity does not change



Describe the motion of ball displayed in each graph?

Stationary at 1.5m

slope = 0 --> speed/ velocity =0

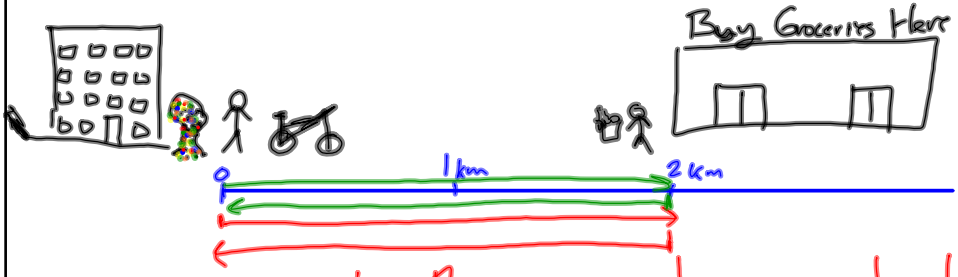
starts at 2m from origin, rolls toward the origin. with a constant negative velocity.

Speed vs Velocity: → speed + direction

→ how fast you move

how far you move per unit time

Distance: How far something goes, how far something is from any given point.



Going to the grocery store you travel a distance of 2km. Going to the grocery store and back you travel a distance of (2km out + 2km back) = 4km

Displacement: Change in position.

When you travel to the grocery store your displacement is 2km

[final position (x_f) − initial position (x_i)
2km − 0km = 2km]

When you travel from the grocery store to home your displacement is

[$x_f - x_i$
0km − 2km = −2km]

When you travel to the grocery store 2km and then back home, your displacement is zero.

Speed: the distance traveled divided by the amount of time spent traveling. :0.5

$$\text{Speed} = \frac{\text{distance (m)}}{\text{time (s)}} \qquad \text{units: } \frac{m}{s}$$

Velocity: the rate at which an object changes position.

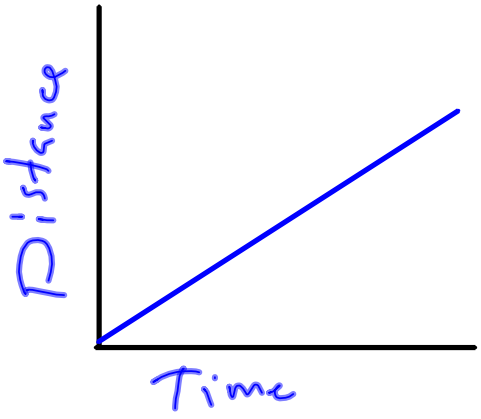
$$\text{Velocity} = \frac{\text{displacement}}{\text{time}} \qquad \text{units: } \frac{m}{s} = \text{displacement}$$

$$V = \frac{d}{t} \Rightarrow d = Vt$$

−2km

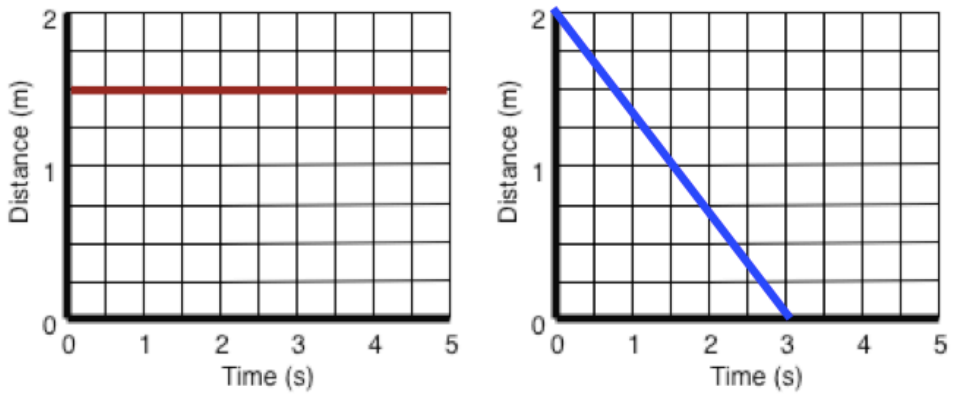
Motion Graphs

Distance Time graph:



Move with a constant speed/ velocity. The same amount of distance for each amount of time.

Constant positive slope = constant positive velocity



Describe the motion of ball displayed in each graph?

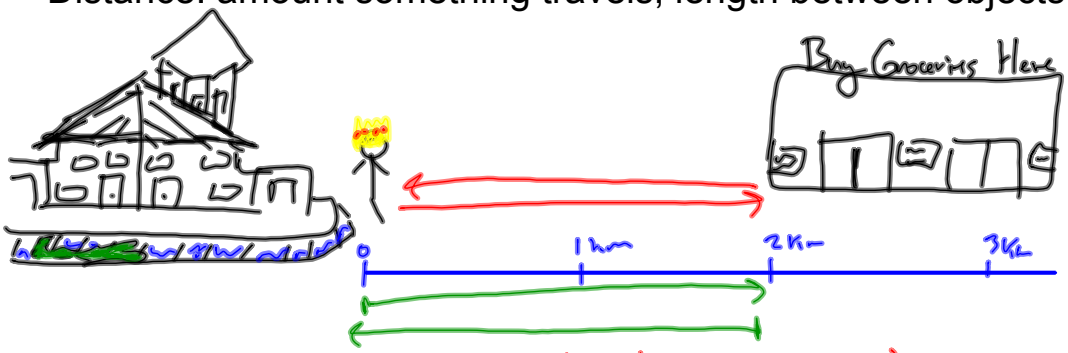
Ball is staying in one place, 1.5m, not moving.

Slope=0 --> speed/ velocity=0

Ball starts at 2m, and moves back to the origin.

the slope is negative so the velocity is negative.

Distance: amount something travels, length between objects



when you walk to the grocery store you travel a distance of 2 km.

When you walk to the grocery store and home again, You travel a distance of (2 km out + 2km back) = 4 km

Displacement: Change in position

When we travel to the grocery store our displacement is 2 km

[final position (x_f) - initial position (x_i) = displacement
2 km - 0km = 2 km]

When we travel from the grocery store to home, our displacement is -2 km

[$x_f - x_i = d = \Delta x$
0km - 2km = -2 km]

When we travel to the grocery store and back our displacement is zero

Speed: distance traveled divided by the amount of time spent traveling

$S = \frac{d}{t}$ Speed = $\frac{\text{distance (m)}}{\text{Time (s)}}$ units: $\frac{m}{s}$

Velocity: the rate at which an object changes position.

$V = \frac{\Delta x}{t}$ Velocity = $\frac{\text{displacement}}{\text{Time}}$ units: $\frac{m}{s}$

Velocity is the speed AND direction