

Distance Time Graphs

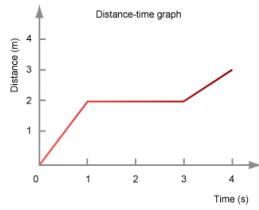
Distance - Time Graphs

Objectives

Analyze slopes of Distance-Time graphs.

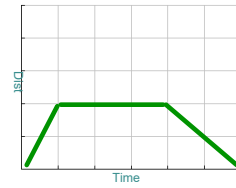
Differentiate between velocity and speed.

Calculate velocity.



How far did the object move?

Distance-Time

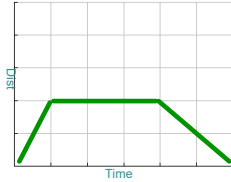


4 units

Distance - "how far"

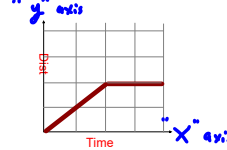
- overall ground covered
- Units: m, km, cm, mm
- Scalar quantity - magnitude - total amount - no direction

Distance-Time



Describe the basic motion...difference?

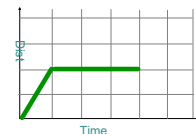
Graph #1



$$\frac{2}{2} = 1$$

$$\frac{\text{Rise}}{\text{Run}}$$

Graph #2



steeper slope - faster
 $\frac{4}{2} = 2$

Speed - "how fast"

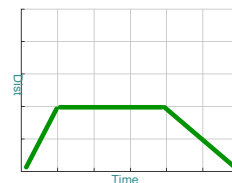
- slope of D-T graph
- rate of distance over time
- Units: m/sec, km/hr, mi/hr.
- scalar quantity

$$s = \frac{d}{t} \quad \frac{\text{rise}}{\text{run}}$$

Displacement - change (Δ) in position

- difference between start & end pts $\Delta d = d_f - d_i$
- Units: m, km, cm, mm
- Vector quantity - magnitude & direction

Distance-Time



Displacement?
0, no change in position

Distance Time Graphs

Velocity

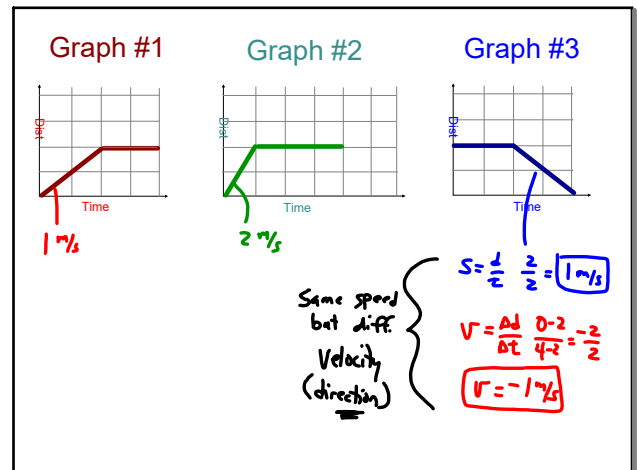
- speed in a given direction
- slope of D-T or P-T graph
- rate of which distance or position changes over time
- Units: m/sec, km/hr, mi/hr.
(+ or -) (N, S, W, E)
- vector quantity

$$v = \frac{\Delta d}{\Delta t}$$

displacement
time

$$\Delta d = d_f - d_i$$

$$\Delta t = t_f - t_i$$



Assignments . . .



- Begin Chapter 1 Homework #1 - 13



Eg | sub | answer w/ units