

Acceleration

Acceleration

Objectives

Describe the concept of acceleration and give examples

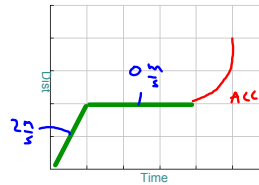
Calculate acceleration, velocity, or distance of an accelerating object

Create a graph of an accelerating object

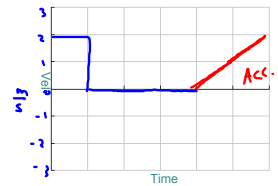


Constant Velocity Graphs

Distance-Time



Velocity-Time



Acceleration

rate at which an object speeds up or down
(rate at which velocity changes over time)

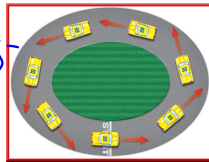
$$a = \frac{\Delta v}{\Delta t} \quad \begin{matrix} \text{m/s} \\ \text{s} \end{matrix}$$

Units: m/s/s or any unit of velocity/time

m/s², km/hr/sec, mi/hr/sec.

slope of V-T graph

*Speed constant
Vel. changing
Acc.*



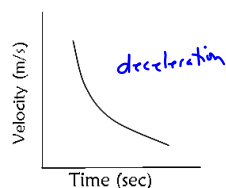
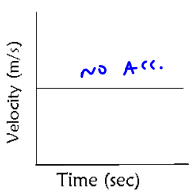
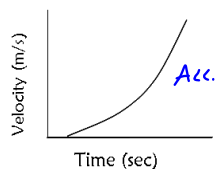
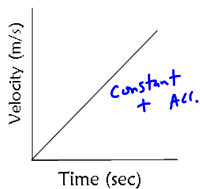
Acceleration Problem

A car increases its speed from 60 km/hr to 80 km/hr in 4 seconds. What is the car's acceleration?

$$Acc = \frac{\Delta v}{t} = \frac{80 \text{ km/hr} - 60 \text{ km/hr}}{4 \text{ s}} = 5 \text{ km/hr/s}$$

*1st sec - 65 km/hr
2nd sec - 70
3rd sec - 75
4th sec - 80*

Velocity vs. Time Graphs



Assignments . . .



- Chapter 1 Homework #21 - 24, 32, 36.



Acceleration

Usian Bolt...100 m data

Distance (m)	Time (sec)
0	0
10	1.85
20	2.87
30	3.78
40	4.65
50	5.50
60	6.32
70	7.14
80	7.96
90	8.79
100	9.69

Attachments

IP Ch2D4a Acc.IP

IP Ch2D4b Acc.IP

IP Ch2D4c Acc.IP