

Velocity is a vector therefore it can be split into components (Direction and magnitude) ie 20 ms^{-1} north.

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

OR

$v = \frac{s}{t}$

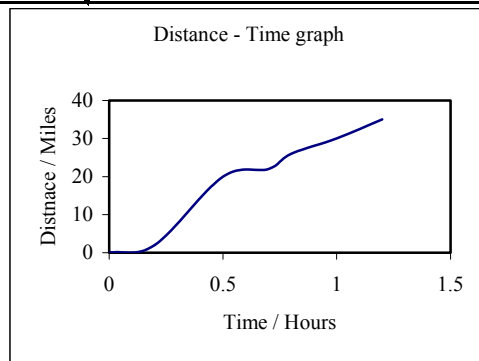
Mapping Space and Time Chapter 8

Distance-Time Graphs

Instantaneous speed can be calculated as the gradient of the tangent at a given point!
An average speed is calculated by finding the gradient of the chord

OR

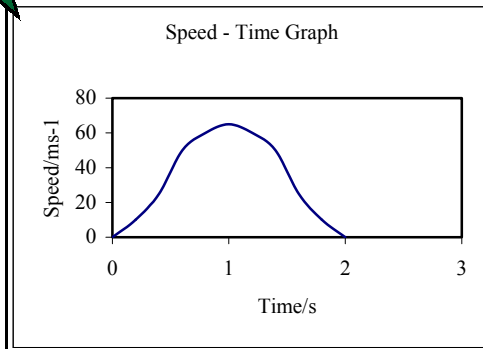
Gradient = $\frac{\text{change in y}}{\text{change in x}}$



Speed = $\frac{\text{Distance}}{\text{Time}}$

OR

$v = \frac{s}{t}$



Speed-Time Graphs

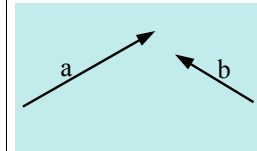
The area under a speed time graph gives the distance travelled.

Graphs

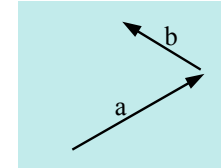
Vectors have a magnitude and a direction

Vectors

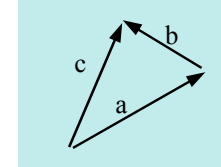
Vector Addition



Take 2 vectors...



...move the tail of one to the tip of the other



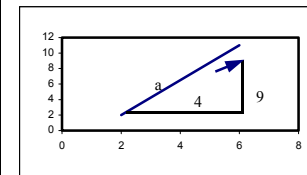
...the resultant is from the tail of the first to the tip of the second.

$c = a + b$

The distance of the resultant can be found using:

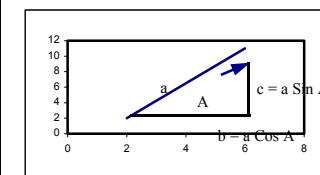
- Measurement (If diagram is drawn to scale)
- Pythagoras theorem (If a right angle is formed $c^2 = a^2 + b^2$)

Components of vectors



Vector a = 4
9

Component vectors from angles



If the angle A is known then the other components can be deduced