

# KINEMATICS

Scalars	Vectors
Magnitude	Magnitude AND Direction

Quantity	SI Unit	Definition
Distance (scalar)	m	Length travelled
Displacement (vector)	m	Length travelled with respect to direction
Speed (scalar)	$m/s$ OR $m s^{-1}$	Rate of change of distance
Velocity (vector)	$m/s$ OR $m s^{-1}$	Rate of change of displacement
Acceleration (vector)	$m/s^2$ OR $m s^{-2}$	Rate of change of velocity

Formulas		
$v = \frac{\Delta x}{t}$	$s = \frac{d}{t}$	$\Delta x = V_1 t + at^2$
$V_2 = V_1 + at$	$a = \frac{V_F - V_I}{t}$	$\Delta x = \frac{1}{2}(V_1 + V_2)t$
$V_2^2 = V_1^2 + 2a\Delta x$	$V_{12} = V_{1E} - V_{2E}$	$V_{AC} = V_{AB} + V_{BC}$

$v$  = velocity

$s$  = speed

$d$  = distance

$\Delta x$  = displacement (some may just use 'd')

$t$  = time

$a$  = acceleration

$V_F = V_2$  = Final Velocity

$V_I = V_1$  = Initial Velocity

$a = g = 9.81 m/s^2$

$1 m/s = 3.6 km/h$

these are my PERSONAL notes but it is free to all for educational purposes.