

MOTION

displacement	m
distance	m
speed	m/s
velocity	m/s
acceleration	m/s^2

$speed (v) = s/t$
 $average\ speed = total\ s/total\ t$
 $velocity = d/t$
 $average\ velocity = total\ d/total\ t$
 $acceleration = v-u/t$
 $v = 2\pi r/t$
 $v = u+at$
 $s = ut + 1/2at^2$
 $v^2 = u^2 + 2as$

Distance-Time Graphs

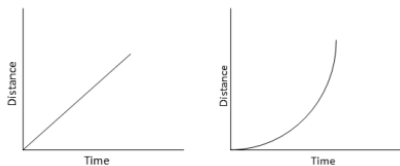


Figure 1: - Distance time graph for uniform speed

Figure 2: - Distance time graph for non-uniform speed

Distance-Time Graphs

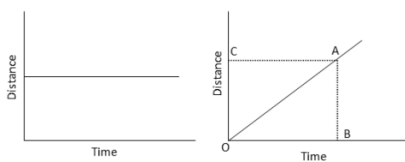


Figure 3: - Distance time graph for objects at rest

Figure 4: - Calculation of speed from distance time

Velocity-Time Graphs

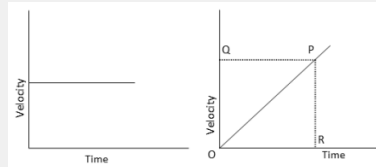


Figure 5: - Velocity time graph when speed remains constant (no acceleration)

Figure 6: - Velocity time graph showing uniform acceleration

FORCE AND LAWS OF MOTION

inertia	kg
force	kgm/s^2 or N
momentum	kgm/s
mass	kg

$F = ma$
 $p = mv$
 $change\ in\ momentum = mv - mu$
 $m_1v_1 + m_2v_2 = (m_1 + m_2)v$

GRAVITATION

weight	N
mass	kg
pressure	Pa or N/m^2
acceleration due to gravity	m/s^2
density	g/cm^3

$F = GMm/d^2$
 $g = GM/R^2$
 $W = mg$
 $W_m = 1/6 W_e$
 (thrust) $F = mg$
 $Weight - upthrust = m$
 $W = m + upthrust$
 $h = 1/2gt^2$
 $v^2 = 2gh$
 $v = gt$

WORK AND ENERGY

work	J
energy	J
power	W

$work = Fs$
 $E_p = mgh$
 $E_k = 1/2mv^2$
 $power = W/t$ // $power = E/t$
 $average\ power = total\ E/total\ t$

SOUND

wavelength	m
frequency	Hz
time period	s
loudness	dB
intensity	W/m^2

$Nu = 1/T$
 $v = \lambda/T$
 $v = Nu\lambda$