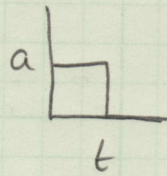
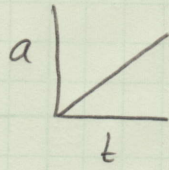
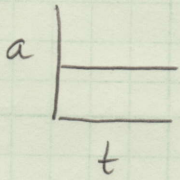


Velocity vs time graphs



Corresponding acceleration vs time graphs

One-Dimensional Motion w/ Constant Acceleration

Final Velocity $v = v_0 + at$

Average Velocity $v = \frac{v_0 + v}{2}$ } only when acceleration is constant

Displacement $\Delta x = \frac{1}{2} (v_0 + v) t$ (for constant a)

$\Delta x = v_0 t + \frac{1}{2} at^2$ (for constant a)

Final Velocity $v^2 = v_0^2 + 2a\Delta x$ $v = \sqrt{v_0^2 + 2a\Delta x}$

Freely Falling Objects

- When air resistance is negligible, all objects dropped under the influence of gravity near Earth's surface fall toward Earth w/ the same, constant acceleration.

Astronaut David Scott 8/2/1971

- dropped a hammer + feather simultaneously on the moon
- both struck the lunar surface at the same time

Freely Falling Object - an object moving freely under the influence of gravity alone

g - symbol for free fall acceleration $g = 9.80 \frac{m}{s^2}$ for Earth