Constant Acceleration Formulae

In Chapter 9, we work out the various $suvat$ formulae by using a velocity-time graph. But it's also possible to derive all of these <u>using integration</u>, provided that we consider that **acceleration is constant**.

Given a body has constant acceleration a, initial velocity u and its initial displacement is 0 m, prove that:

a) Final velocity: $v = u + at$

b) Displacement: $s = ut + \frac{1}{2}at^2$