11.5) Constant acceleration formulae

Worked example

A particle moves in a straight line with constant acceleration $a\ ms^{-2}$.
Given that its initial velocity is $u\ ms^{-1}$ and its initial displacement is $0\ m$, prove that:

Its velocity, $v\ ms^{-1}$, at time t s is given by $v = u + at$

Your turn

A particle moves in a straight line with constant acceleration $a\ ms^{-2}$.
Given that its initial velocity is $u\ ms^{-1}$ and its initial displacement is $0\ m$, prove that:

Its displacement, $s\ m$, at time t s is given by $s = ut + \frac{1}{2}at^2$

Proof