Appendix A

# $v$–$t$ Diagrams

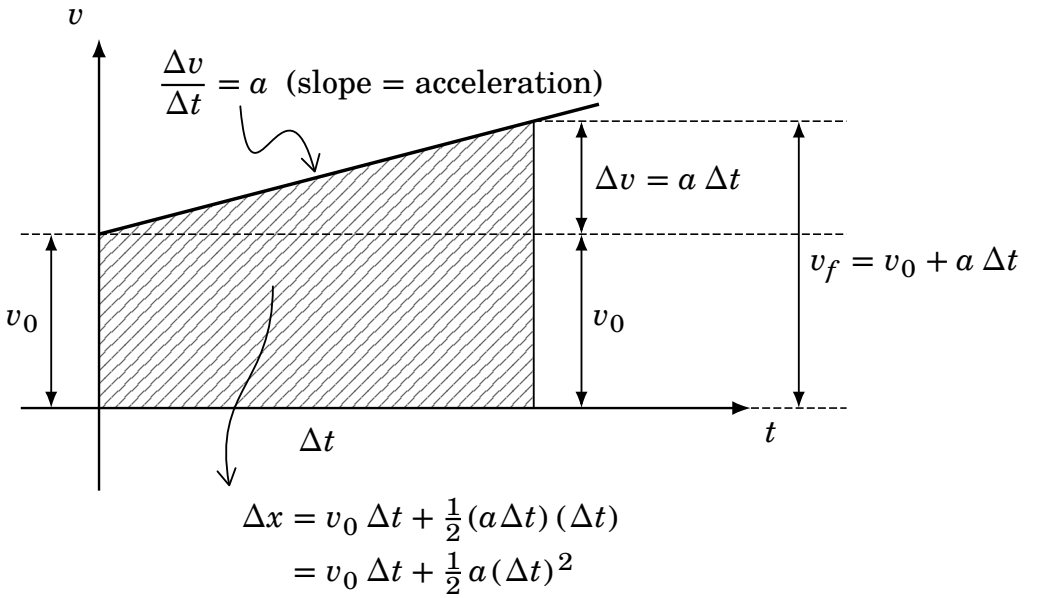



Figure A.1: The $v$–$t$ diagram for constant acceleration. Motion with a constant acceleration $a$ corresponds to a straight line with slope $a$. The line starts at the initial velocity $v_0$ and climbs at the rate $a$, so over a time interval $\Delta t$ it gains $a\Delta t$ and reaches $v_f = v_0 + a\Delta t$. The area under it is the displacement $\Delta x$, and it's the sum of a rectangle $v_0\Delta t$ and a triangle $\frac{1}{2}(a\Delta t)(\Delta t)$ sitting on top.