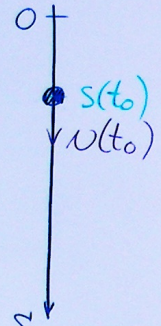
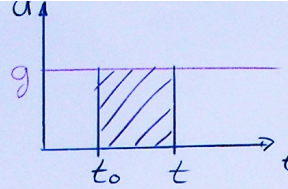
Bsp: Der freie Fall



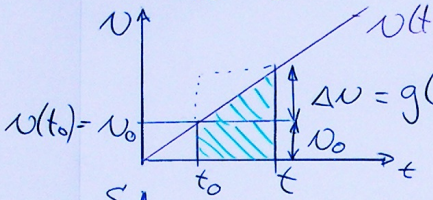
auf Erdoberfläche:

$a(t) = a_{Fall} = g = 9.81\,m/s^2$



Fläche $= g(t-t_0)$

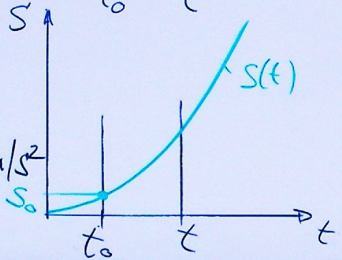
$v(t) = v_0 + g(t-t_0)$



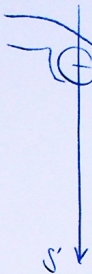
Fläche $= v_0(t-t_0) + \frac{1}{2}g(t-t_0)^2$

$= \Delta s$

$s(t) = s_0 + v_0(t-t_0) + \frac{1}{2}g(t-t_0)^2$



einfachster Fall:



$s(0) = 0$

$t_0 = 0$

$s_0 = 0$

$v_0 = 0$

$\Rightarrow \boxed{s(t) = \frac{1}{2}gt^2}$