ANOTHER LOOK AT $\mathbf{s} = \mathbf{s}_0 + \mathbf{v}_0 \mathbf{t} + (1/2)\mathbf{a}\mathbf{t}^2$

Let's start by defining $\Delta s = s_f - s_0$



For an object moving at a constant speed of v_{0} , the plot of v vs. t will look like



 Δs is $v_0 t$. Note that this is the area under the line. [NOTE: In general, the area under any v vs. t plot is therefore Δs .]

For an object with an initial speed of v_0 and a constant acceleration of a, the plot of v vs. t is

