$$v = \frac{ds}{dt} \rightarrow ds = vdt$$

$$a = \frac{dv}{dt} \rightarrow dt = \frac{dv}{a}$$

$$ds = \frac{vdv}{a}$$

$$\int_0^S s = \frac{1}{a}\int_{V_{initial}}^{V_{final}} vdv = \frac{1}{a}\,\frac{v^2}{2}\Big|_{V_{initial}}^{V_{final}} = \frac{1}{a}\frac{V_{final}^2 - V_{initial}^2}{2a} = S \rightarrow \boldsymbol{V_{final}^2 - V_{initial}^2 = 2aS}$$

$$\boldsymbol{V_{final}^2 = V_{initial}^2 + 2aS}$$