

$$7. \begin{cases} a = k\sqrt{v} \\ a = \frac{dv}{dt} \end{cases}$$

$$\frac{dv}{dt} = k\sqrt{v}$$

$$t = \frac{1}{k} v^{-\frac{1}{2}} dv$$

$$t = \frac{1}{2k} \frac{2}{k} v^{\frac{1}{2}}$$

$$v = \frac{k^2}{4} t^2$$

$$v(t) = -\frac{k^2}{4} t^2 + v_0$$

$$x(t) = \frac{k^2}{12} t^3 + v_0 t$$

~~trans!~~

$$a(t) = \frac{k^2}{2} t$$

Kolga $v=0$:

$$-\frac{k^2}{4} t^2 + v_0 = 0$$

$$v_0 = \frac{k^2}{4} t^2$$

$$t = \frac{2}{k} \sqrt{v_0}$$

$$x_{\text{max}} = \frac{k^2}{12} \times \frac{4}{k^2} \times \frac{2}{k} \times v_0^{\frac{3}{2}} + v_0 \times \frac{2}{k} \sqrt{v_0}$$

$$= \frac{2}{3k} v_0^{\frac{3}{2}} + \frac{2}{k} v_0^{\frac{3}{2}}$$

$$= \frac{8}{3k} v_0^{\frac{3}{2}}$$