

$$v = 0 = at$$

$$0 = \left(\frac{v^2}{2h}\right)t$$

$$\frac{(\cancel{v})2h}{\cancel{v}} = t$$

$$y = \frac{1}{2}at^2 + v_0t + h = 0$$

$$= \frac{1}{2}\left(\frac{v^2}{2h}\right)\left(\frac{2h}{v}\right)^2 + v_0\left(\frac{2h}{v}\right) + h$$

$$= \frac{1}{2}\left(\frac{v^2}{2h}\right)\left(\frac{4h^2}{v^2}\right) + 2h + h$$

$$= \frac{1}{2}2h + 2h + h = 4h = \text{some constant}$$

$$4(0) = 0 \checkmark$$

$$-0.5 \text{ km/s} = (a)(t)$$

$$a = \frac{v^2}{2h} = \frac{.25}{2(26)} = .0048 = \frac{0.5}{t}$$

$$.0048 = \frac{v^2}{2(25.5)}$$

$$\frac{1/4}{52/1} = 1/11$$

$$v^2 = (51) \cdot 0.0048 = .2448 \quad \sqrt{.2448}$$

$$v = -\sqrt{.2448} \approx -0.49477$$

$$a = (-1)(.5 - .0048)$$

$$(full-rate) = 0.5$$

$$last-velocity - .0048 = v_0 +$$

$-v_0$

$$-.0048 = rate - 0.5$$

$$rate = .4951$$