$$a = \frac{V_f - V_i}{t}$$

$$d = \frac{v_f + v_i}{2}t$$

$$d = v_i t + \frac{1}{2} a t^2$$

solution#1

$$a = \frac{v_f - v_i}{t}$$

$$t = \frac{v_f - v_i}{a}$$

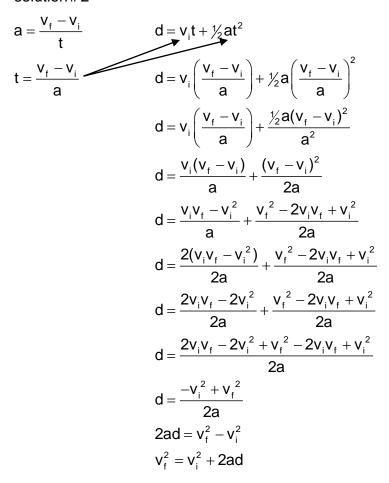
$$d = \frac{v_f + v_i}{2} \left( \frac{v_f - v_i}{a} \right)$$

$$d = \frac{(v_f + v_i)(v_f - v_i)}{2a}$$

$$2ad = v_f^2 - v_i^2$$

$$v_f^2 = v_i^2 + 2ad$$

solution#2



## solution#3

$$d = \frac{v_f + v_i}{2}t$$

$$d = v_i \left(\frac{2d}{v_f + v_i}\right) + \frac{1}{2}a\left(\frac{2d}{v_f + v_i}\right)^2$$

$$d = \frac{2dv_i}{v_f + v_i} + \frac{1}{2}a\frac{4d^2}{(v_f + v_i)^2}$$

$$d = \frac{2dv_i}{v_f + v_i} + \frac{2ad^2}{(v_f + v_i)^2}$$

$$d = \frac{2dv_i}{(v_f + v_i)} \frac{(v_f + v_i)}{(v_f + v_i)} + \frac{2ad^2}{(v_f + v_i)^2}$$

$$d = \frac{2dv_i(v_f + v_i) + 2ad^2}{(v_f + v_i)^2}$$

$$d(v_f + v_i)^2 = 2dv_i(v_f + v_i) + 2ad^2$$

$$\frac{d(v_f + v_i)^2}{d} = \frac{2dv_i(v_f + v_i) + 2ad^2}{d}$$

$$(v_f + v_i)^2 = 2v_i(v_f + v_i) + 2ad$$

$$v_f + v_i^2 = 2v_i(v_f + v_i) + 2ad$$

$$v_f^2 + 2v_iv_f + v_i^2 = 2v_iv_f + 2v_i^2 + 2ad$$

$$v_f^2 - v_i^2 = 2ad$$

$$v_f^2 - v_i^2 = 2ad$$