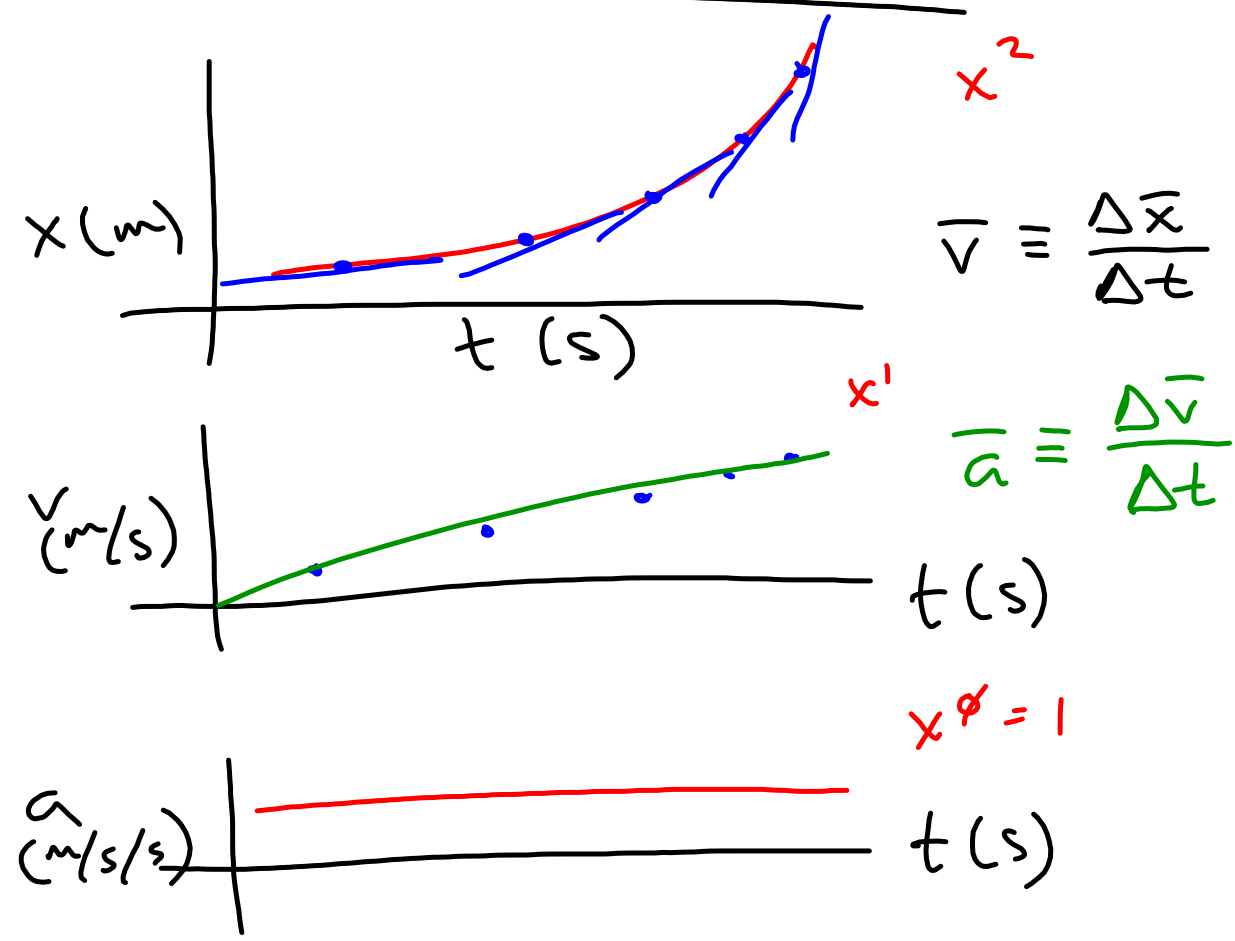
Motion on Incline

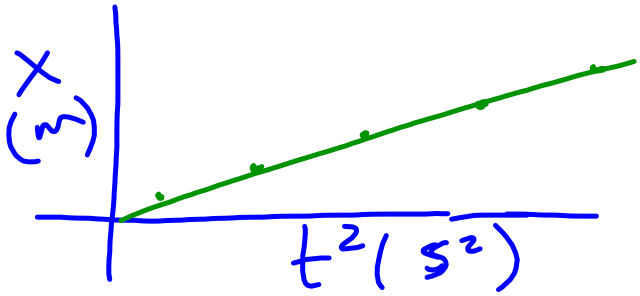


- Linearization

x	t	t^2
1	1	1
4	2	4
9	3	9
16	4	16
25	5	25

$y = x^2$

$x = t^2$



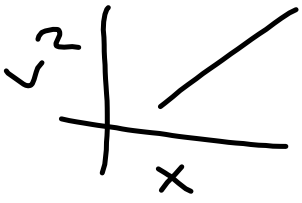
m/s^2

$$slope = \frac{\Delta x}{\Delta t^2}$$

$$\frac{1}{2}a = \frac{\Delta x}{\Delta t^2}$$

- (Velocity)^2 – position

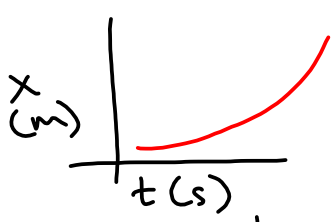
$$slope = \frac{\Delta v^2}{\Delta x}$$

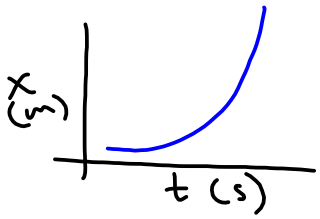


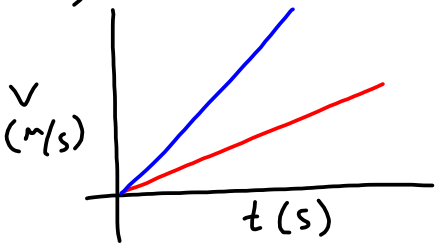
$$2a = \frac{\Delta v^2}{\Delta x}$$

$$v_f^2 = v_i^2 + 2a\Delta x$$

Lab Analysis Guide:

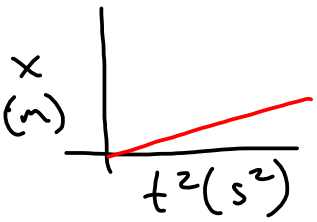


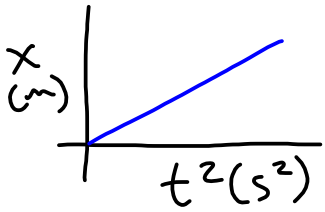




$a = \frac{\Delta v}{\Delta t}$ $a = \frac{\Delta v}{\Delta t}$

slope = acceleration





$\frac{1}{2}a = \frac{\Delta x}{\Delta t^2}$ $\frac{1}{2}a = \frac{\Delta x}{\Delta t^2}$

Slope on $x-t^2$ graph is $\frac{1}{2}$ slope of v-t graph

- Motion Map