Review

14. $m = 1.8 g$

$v_2 = 500 m/s$
$v_1 = 0$
$\Delta d = 25 cm$
] $a = ?$

$F = ?$

$$v_2^2 = v_1^2 + 2a\Delta d$$

$$v_2^2 - v_1^2 = 2a\Delta d$$

$$a = \frac{v_2^2 - v_1^2}{2\Delta d}$$

$$a = \frac{(500 m/s)^2 - 0}{2(0.25 m)}$$

$$a = 5.0 \times 10^5 m/s^2$$

$$F = ma$$

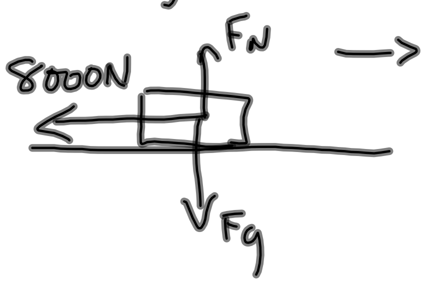
$$F = (0.0018 kg)(5.0 \times 10^5 m/s^2)$$

$$F = 9.0 \times 10^2 N$$

15. $\Delta t_{reaction} = 0.60\,s$
$V = 72\,km/h$ (m/s)

$\Delta d_{reaction} =$

braking:



$F_{net} = ma$

$-8000N = (1000kg)\,a$

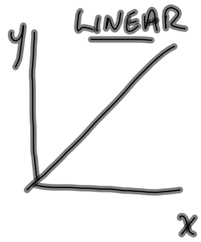
$a = -8\,m/s^2$

$V_1 = 72\,km/h$

$V_2 = 0$

$\Delta d = ?$

Review of Graphical Analysis of Data

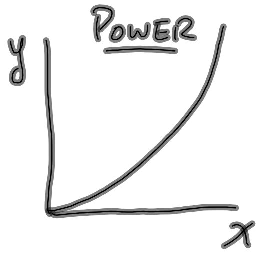


$y \propto x$ (direct proportionality)

$y = kx$

$(y = mx + b)$

A plot of y vs x is linear with a slope of k and a y-intercept of zero

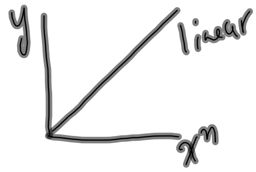


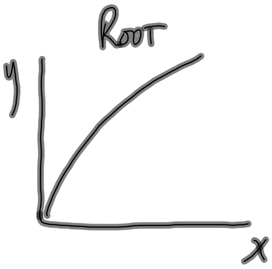
$y \propto x^n$

$y = kx^n$

$(y = mx + b)$

A graph of y vs x^n will be linear with a slope of k and a y-intercept of zero.





$y \propto \sqrt[n]{x}$

$y = k\sqrt[n]{x}$

$(y = mx + b)$

A graph of y vs $\sqrt[n]{x}$ will be linear with a slope of k and a y-intercept of zero

$y \propto \frac{1}{x^n}$

$y = k\left(\frac{1}{x^n}\right)$

$(y = mx + b)$

A graph of y vs $\frac{1}{x^n}$ will be linear with a slope of k and a y-intercept of zero