

T	R
7.6	5.8
30	15
380	78
930	143

$8 = 2^?$

$2.586^x = 3.947$

$\log 2.586^x = \log 3.947$

$x \log 2.586 = \log 3.947$

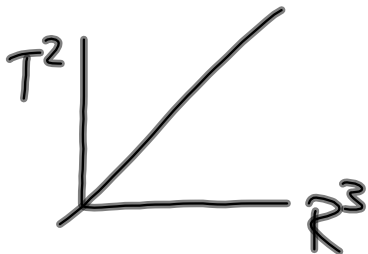
$x = \frac{\log 3.947}{\log 2.586}$

$x = 1.45$

close to 1.5 = $\frac{3}{2}$

$T \propto R^{\frac{3}{2}}$

$T^2 \propto R^3$



Using Proportioning Techniques in Physics

- Forming an equation from a proportionality:

$$I \propto \frac{1}{d^2}$$

$$I = \frac{k}{d^2}$$

let I be 10 lx

d be 3.0 cm

$$k = I d^2$$

$$k = (10 \text{ lx})(3.0 \text{ cm})^2$$

$$k = 90 \text{ lx} \cdot \text{cm}^2$$

$$I = \frac{(90 \text{ lx} \cdot \text{cm}^2)}{d^2} \quad \leftarrow \text{specific equation}$$

- Forming Proportionalities from an Equation:

$$F_g = \frac{\overset{\leftarrow \text{constant}}{G} m_1 m_2}{d^2} \Rightarrow F_g \propto \frac{1}{d^2}$$

$$F_g \propto m_1$$

$$F_g \propto m_2$$

- Using Logs to find an equation:

$$y \propto x^n$$

$$y = kx^n$$

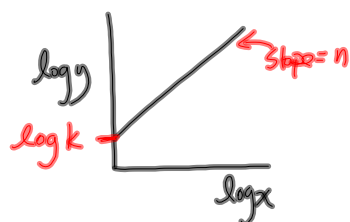
$$\log y = \log(kx^n)$$

$$\log y = \log k + \log x^n$$

$$\log y = n \log x + \log k$$

$$y = mx + b$$

A graph of $\log y$ vs $\log x$ will be linear with a slope of n and a y-intercept of $\log k$



SP

1.

$$F \propto v^2$$

$$F = kv^2$$

let F' be the new force

$$v' \text{ be } 3v$$

$$F' = k(3v)^2$$

$$F' = 9kv^2$$

$$F' = 9F$$

2.

$$V = 1.0 \times 10^5 L$$

dimensions doubled

$$V' = ?$$

$$V = \pi r^2 h$$

$$V' = \pi (2r)^2 (2h)$$

$$V' = 8\pi r^2 h$$

$$V' = 8V$$

$$V' = 8(1.0 \times 10^5 L)$$

$$V' = 8.0 \times 10^5 L$$

TO DO

① PP | 30

② Finish the Analyzing Data

③ Assignment: FOP | p38 | 28-34 ADV 35+36

Due Thurs.

④ Quiz - Wed (proportioning technique)