

Proportionality sheet

$$\left. \begin{array}{l} R \propto L \\ R \propto \frac{1}{d^2} \end{array} \right\} R \propto \frac{L}{d^2} \quad (\text{proportionality statement})$$

$$R = \frac{kL}{d^2} \quad (\text{general equation})$$

$$k = \frac{Rd^2}{L} \quad (\text{solve for } k)$$

$$k = \frac{(9 \Omega)(0.125 \text{ cm})^2}{16 \text{ m}}$$

$$k = 0.00879 \frac{\Omega \cdot \text{cm}^2}{\text{m}}$$

$$R = \frac{0.00879 L}{d^2} \quad (\text{specific equation})$$

Hw Probe (Proportionality Sheet) Friday

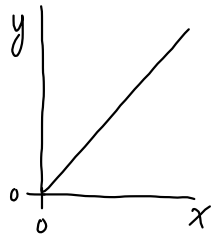
QUIZ Tuesday - Linear Graph.

- plot data (y vs x)
(axes labelled, title, good scale, LOBF)
- find the equation for LOBF
- predictions (interpolation/
extrapolation)

using the graph or equation.

Graphical Analysis of Curved Data

Recall a linear graph with a y-intercept of zero:



$$y \propto x$$

$$y = kx$$

$$(y = mx + b)$$

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

Power Curve



$$y \propto x^n$$

$$y = kx^n$$

$$(y = mx + b)$$

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

Root Curve



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

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

$$(y = mx + b)$$

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

Inverse Curve



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

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

$$(y = mx + b)$$

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