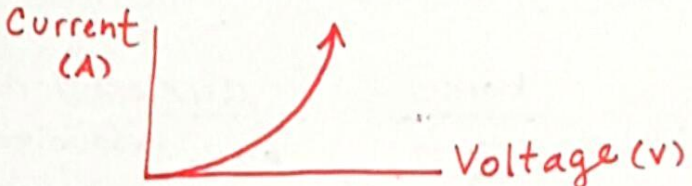
Data Analysis Practice

Voltage (V) X-axis	Current (A) y-axis
0	0
1.01	1.00
1.93	3.87
3.13	10.02
4.11	16.30
5.07	26.12

Use Logger Pro to graph this data. Sketch the graph below:



The dependent variable is: Current

The independent variable is: Voltage

The algebraic representation is: $y = Ax^2$

The proportionality relationship is:

y is proportional to x^2

OR

Current is proportional to voltage^2

Double x

$y = A(2x)^2$

$y = 4 \cdot Ax^2$

↳ y increases by 4

If voltage is doubled, current is: increased by factor of 4

If voltage is halved, current is: decreased by factor of 4

As voltage increases, current ... ↳ increases

Solve for the units of the constant:

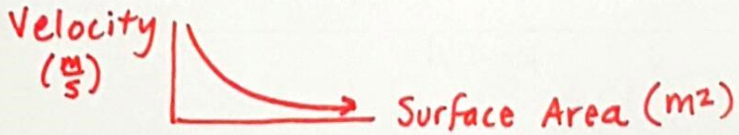
$y = A'x^2$

$A = A' V^2$

$A' = A/V^2$ = Amps/Volts^2

Surface Area (m^2) X-axis	Velocity (m/s) y-axis
0.55	1.45
1.05	0.83
1.53	0.55
2.04	0.42
2.56	0.33
3.03	0.29

Use Logger Pro to graph this data. Sketch the graph below:



The dependent variable is: velocity

The independent variable is: Surface area

The algebraic representation is: $V = A\left(\frac{1}{S}\right)$

The proportionality relationship is:

Velocity is proportional to $\frac{1}{\text{surface Area}}$

$y = A\left(\frac{1}{x}\right)$

double x

$y = A\left(\frac{1}{2x}\right) = \frac{1}{2} \cdot A\left(\frac{1}{x}\right)$

If surface area is doubled, velocity is: halved

If surface area is halved, velocity is: doubled

As ~~voltage increases, current~~ surface area increases, velocity decreases...

Solve for the units of the constant:

$y = A\left(\frac{1}{x}\right)$

$V = A\left(\frac{1}{S}\right)$

$VS = A$

$A = \left(\frac{m}{s}\right)(m^2)$

$A = \frac{m^3}{s}$