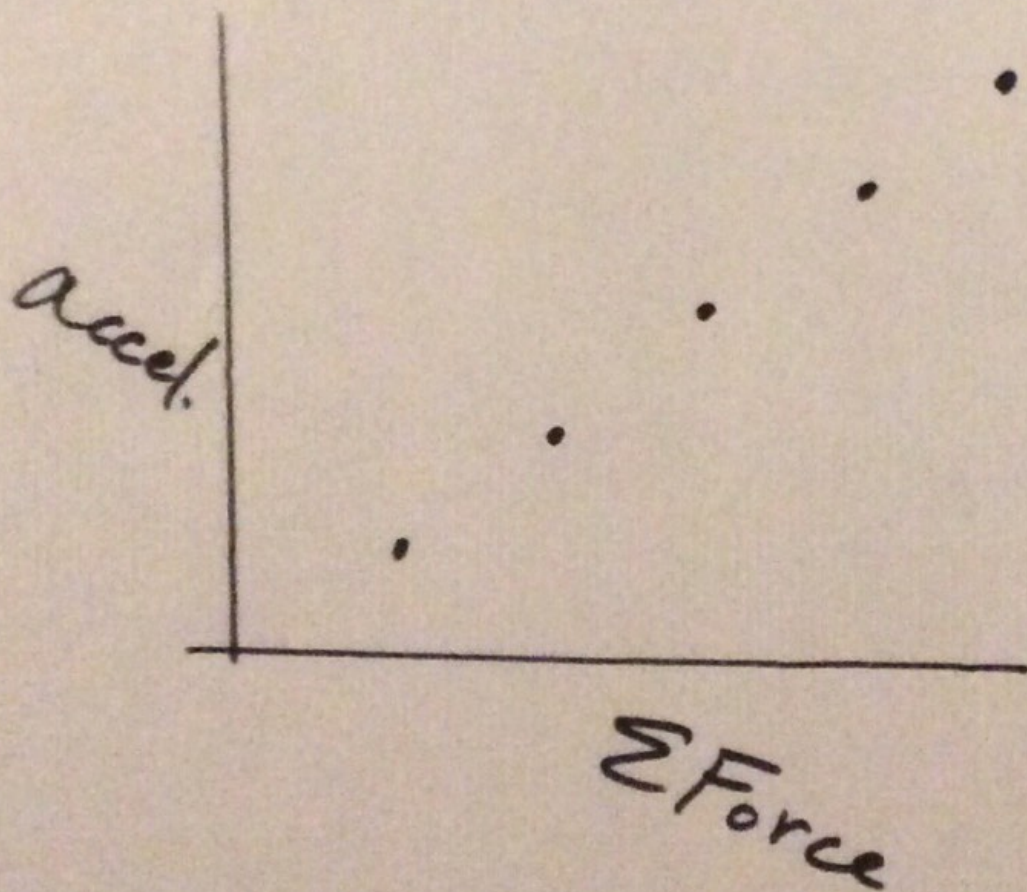


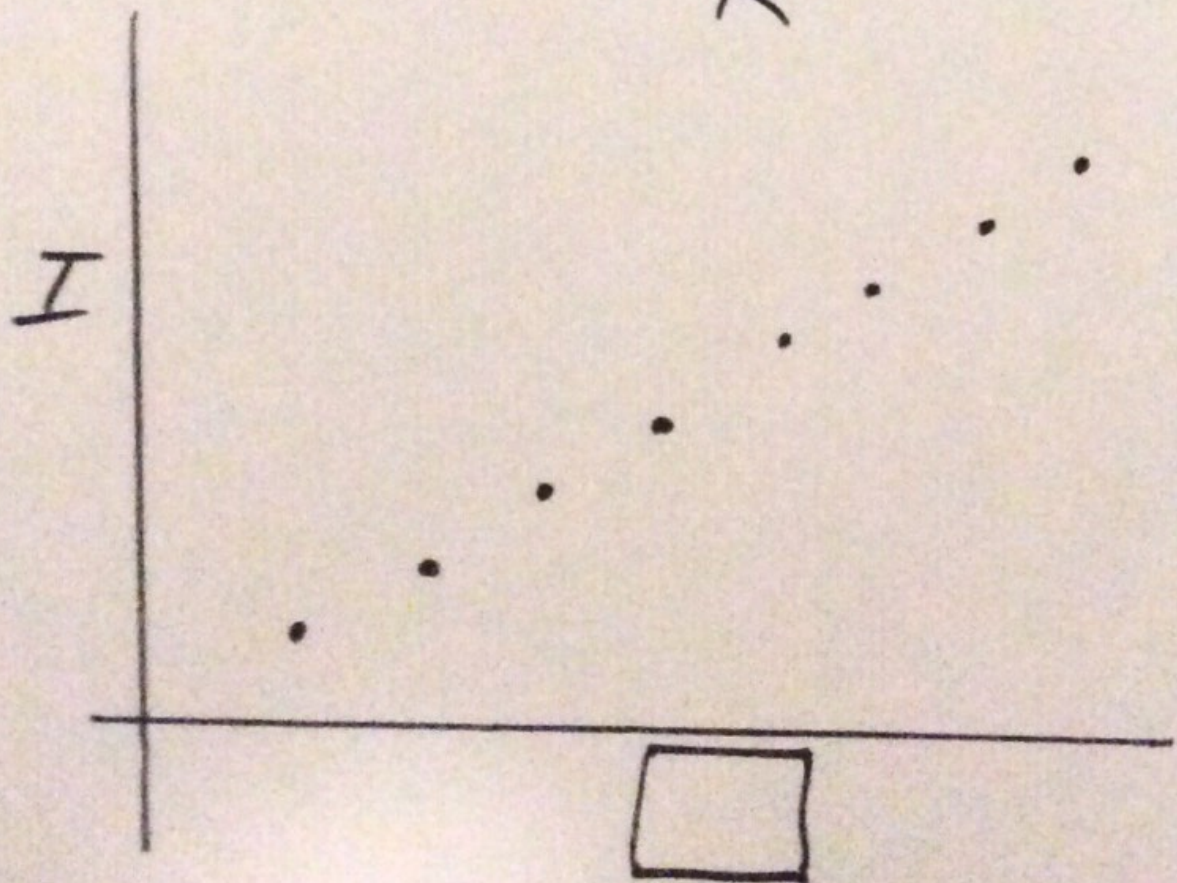
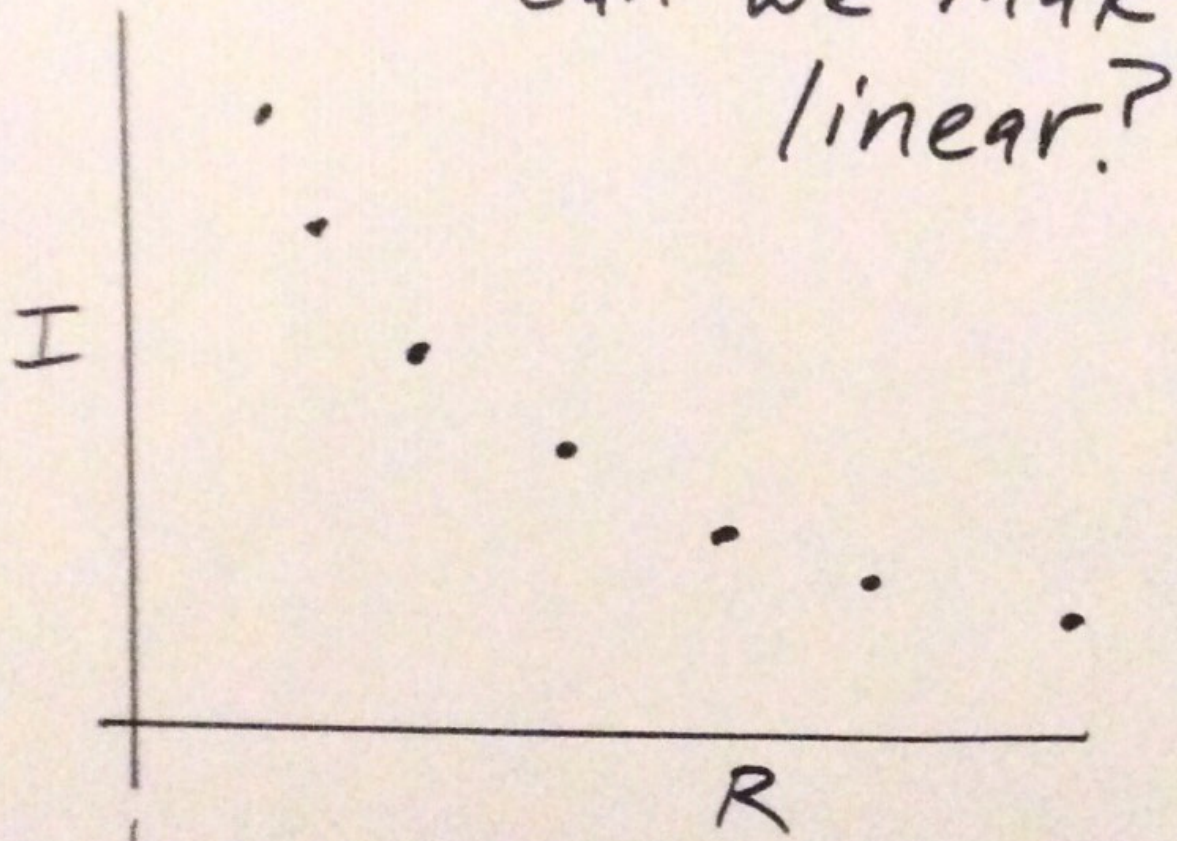
Linearizing Data

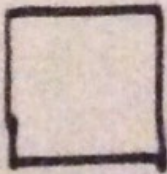
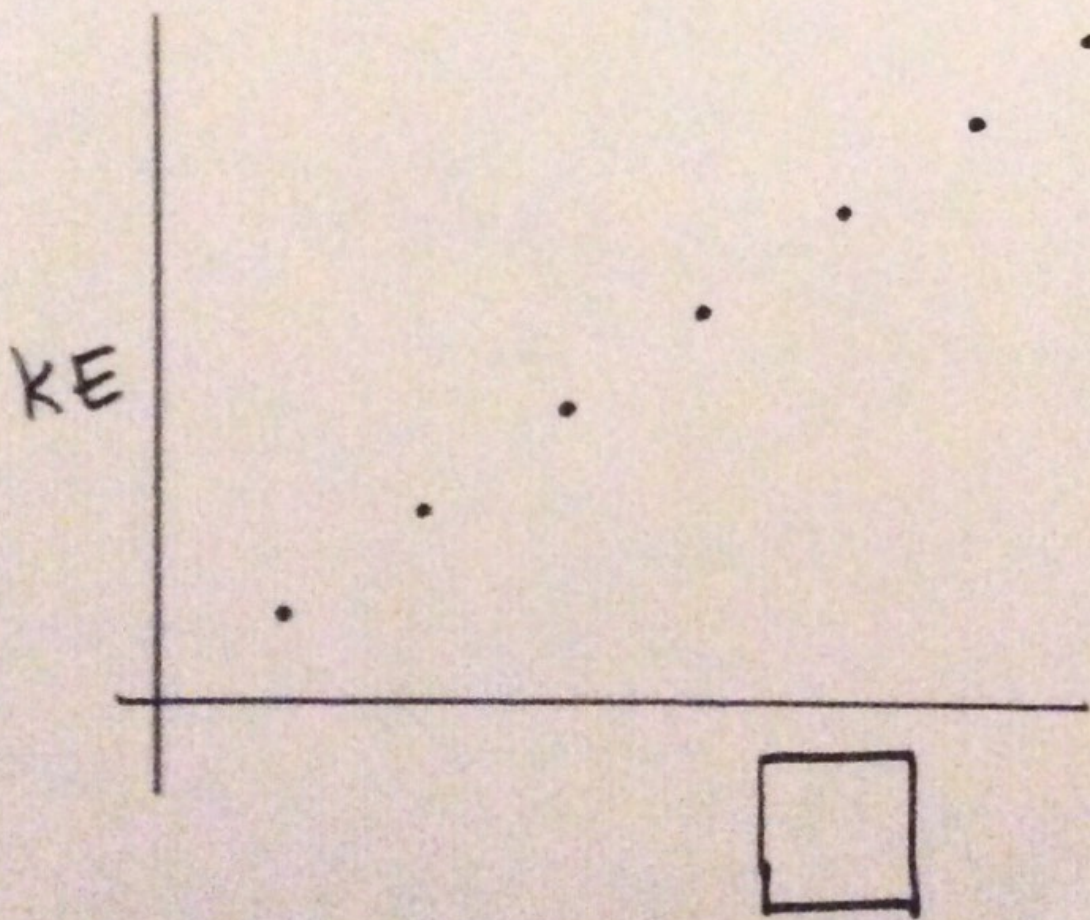
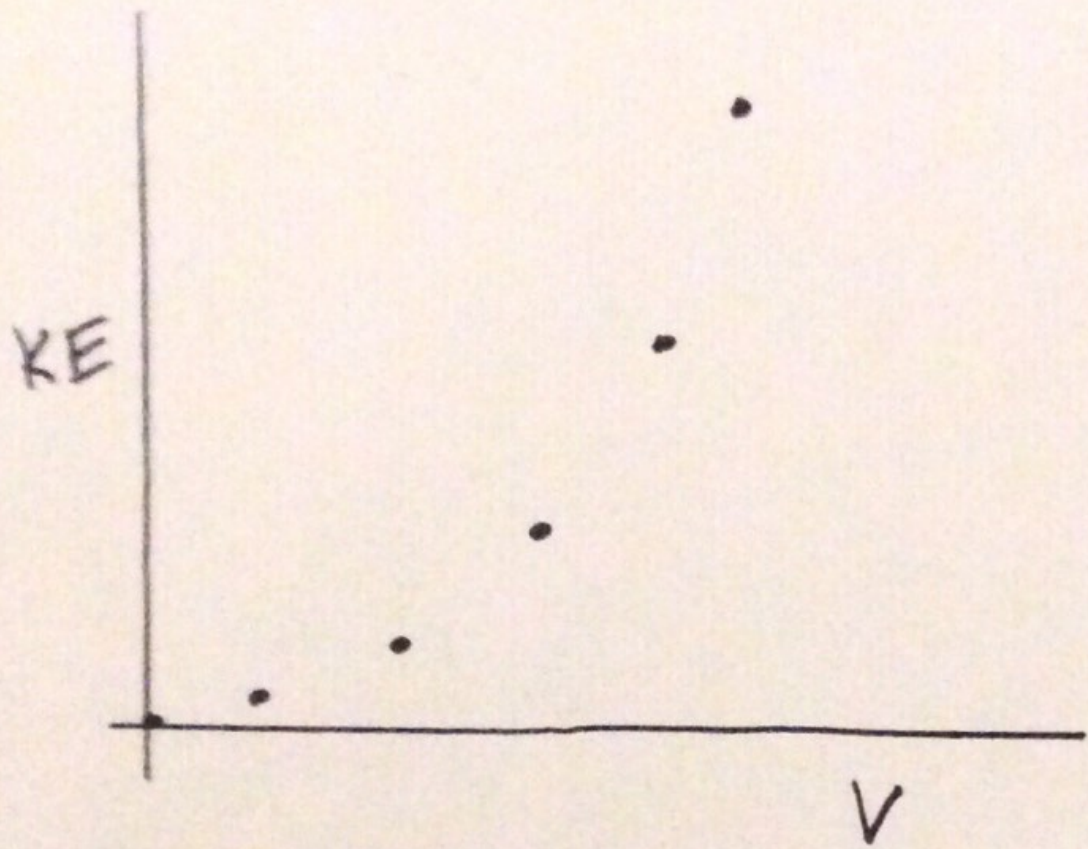
- Two quantities are proportional if they form a straight line on a scatter plot graph.

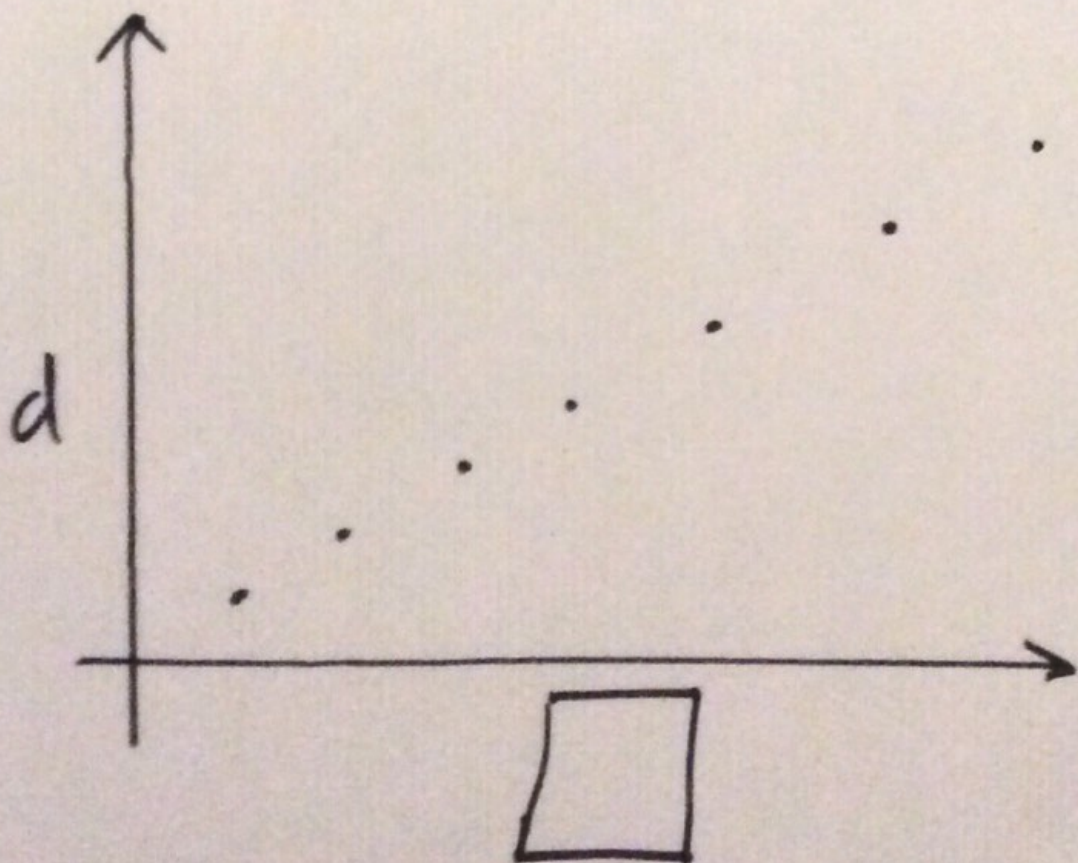
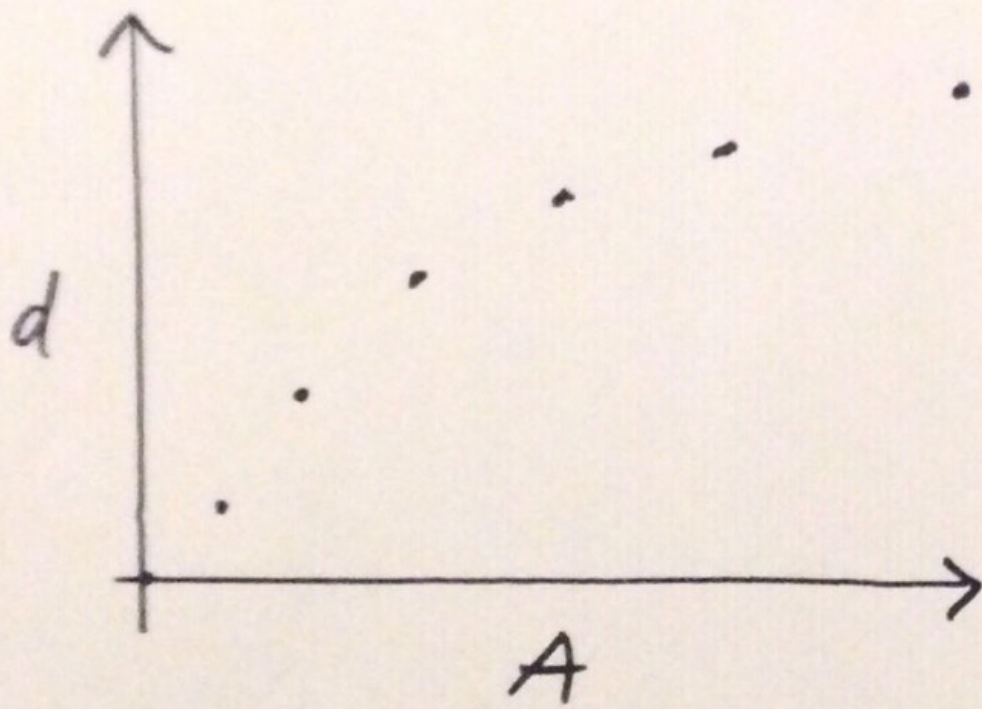


Acceleration against Net Force

If I & R create a non-linear graph how can we make it linear?







We linearize data so we can develop an equation showing how the linearized quantities are related.

1. Linearize.
2. Draw a best fit line.
3. Find the slope.
4. Find the y -intercept.
5. Build a mathematical model from $y = mx + b$.

Terminology:

$a \propto \Sigma F$ a & ΣF are proportional.

$$I \propto \frac{1}{R}$$

I is proportional $1/R$
or

I is inversely proportional to R .

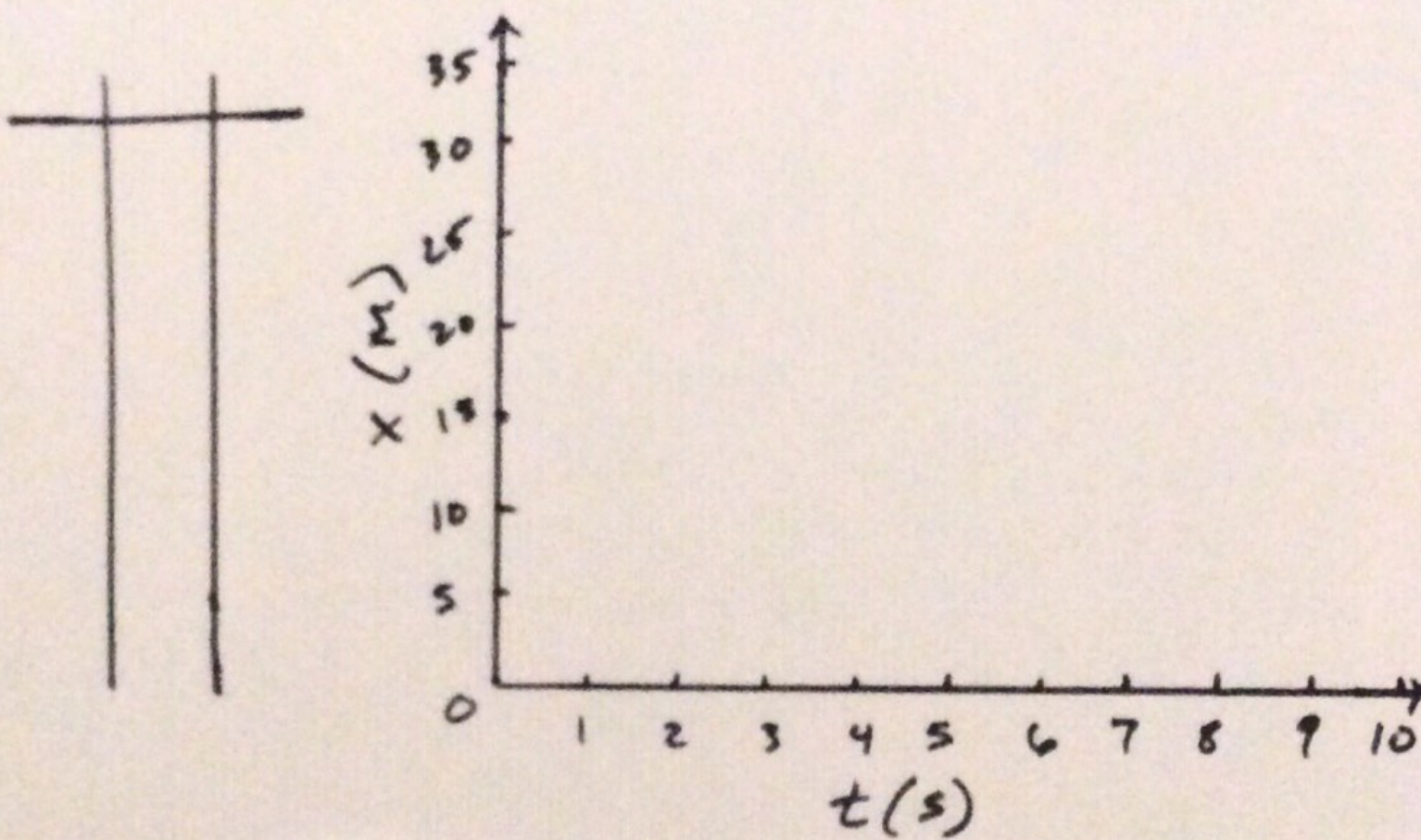
$$KE \propto V^2 \quad d \propto A^{1/2}$$

KE is proportional to V^2 .

d is proportional to $A^{1/2}$ G

The slope of linearized
data may be called
the constant
of proportionality.

• • • • • • •
30m 25m 20m 15m 10m 5m 0



What is the slope of the x-t graph?

As goes the slope, so goes the _____.

$$\text{Average Velocity} = \frac{\Delta x}{\Delta t} = \frac{\text{change in position}}{\text{change in time}}$$