

Analyzing Experimental Data

t (s)	1	2	3	4	5	6	7
d (m)	28	56	84	112	140	168	196

$$d \propto t \quad (\text{proportionality statement})$$

$$d = kt \quad (\text{general equation})$$

$$k = \frac{d}{t}$$

$$k = \frac{84\text{m}}{3\text{s}}$$

$$k = 28\text{m/s}$$

} solve for k

$$d = \left(28\frac{\text{m}}{\text{s}}\right)t \quad (\text{specific equation})$$

f (Hz)	5	10	20	50	75	100
T (s)	0.2	0.1	0.05	0.02	0.013	0.01

The diagram shows arrows connecting values in the table with handwritten labels indicating the multiplication factor between them:

- Red arrow from 5 Hz to 10 Hz: $\times 2$
- Red arrow from 0.2 s to 0.1 s: $\times \frac{1}{2}$
- Green arrow from 10 Hz to 50 Hz: $\times 5$
- Green arrow from 0.1 s to 0.02 s: $\times \frac{1}{5}$
- Blue arrow from 5 Hz to 100 Hz: $\times 10$
- Blue arrow from 0.2 s to 0.01 s: $\times \frac{1}{10}$

$$T \propto \frac{1}{f}$$

\leftarrow inverse proportionality

SP1

y	x
250	3
750	9
2500	30
5000	60

$$y \propto x$$

Since the multipliers match, we know this is a direct proportionality.

SP2

A	B
20	14
80	28
180	42
2000	140

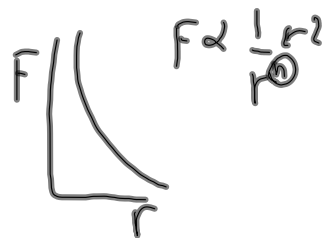
$$A \propto B^2$$

The multipliers on B need to be squared to equal the multipliers for A

SP3

F	r
900	1
225	2
36	5
14	18
1	30

$$F \propto \frac{1}{r^2}$$



Hw

FOP: p 22 | PP
p 38 | 26, 27

1. write the prop.
2. write the general eq.
3. find k.
4. write the specific eq.