

## Lab 12 Data and Observation

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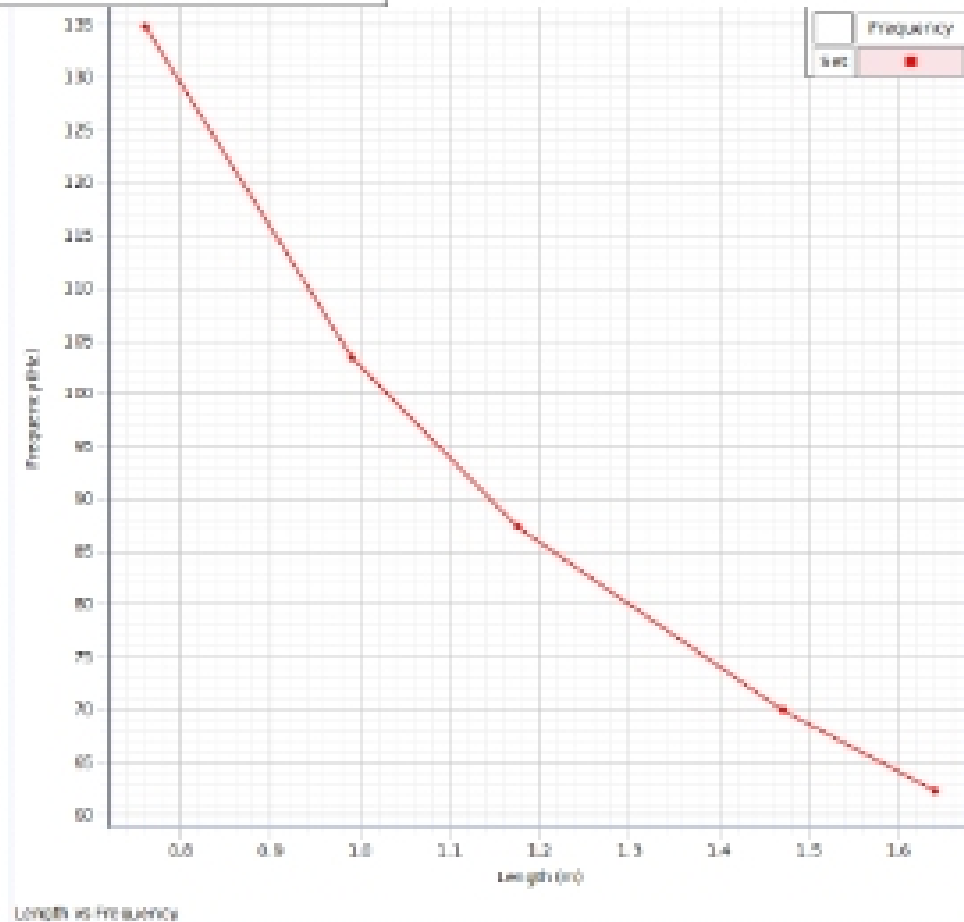
Independent: length, string weight, mass, nodes

Dependent: Frequency

- When plucked the string goes up and down and creates a node in the middle of the string. The vibration period is very short.
- 1.26 gms/m string
- Amplitude: 4.5 V
- Mass: 5 kg

Length (m)	Frequency (Hz)
0.76 m	134.80 Hz
0.99 m	103.437 Hz
1.175 m	87.33 Hz
1.47 m	69.96 Hz
1.64 m	62.32 Hz

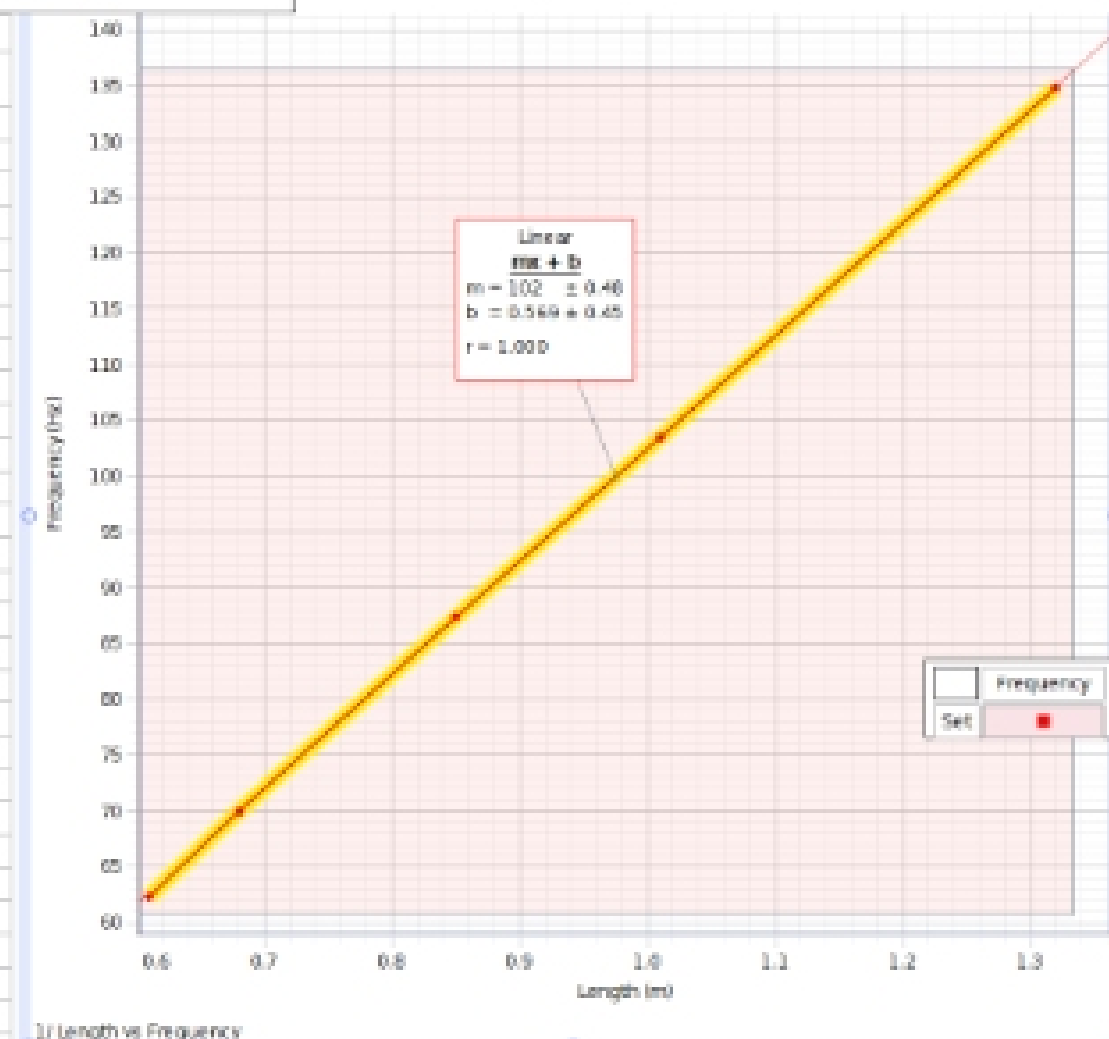
	Length (m)	Frequency (Hz)
1	0.760	134.800
2	0.990	103.437
3	1.175	87.330
4	1.470	69.960
5	1.640	62.320
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- The length is inversely proportional to frequency

1/ Length (m)	Frequency (Hz)
1.32	134.80
1.01	109.437
0.85	87.33
0.68	69.96
0.61	62.32

	Set	Set
	Length (m)	Frequency (Hz)
1	1.32	134.800
2	1.01	109.437
3	0.85	87.330
4	0.68	69.960
5	0.61	62.320
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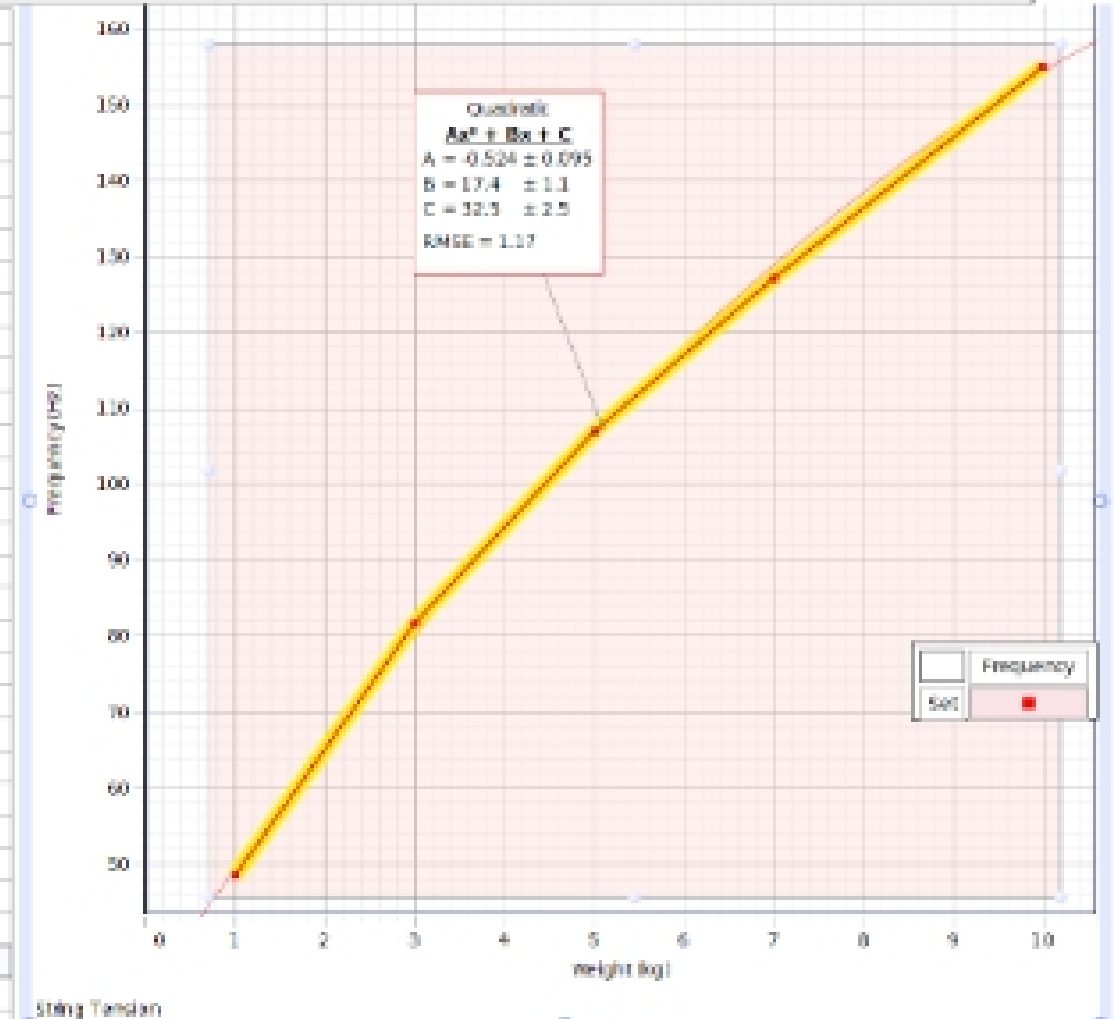
- When we graphed the normal length vs frequency the graph wasn't linear, but when we graphed 1/length vs frequency our graph was linear indicating that frequency is inversely proportional to length.

Now changing mass:

- String: 1.26 gms/m
- Amplitude: 4.5 V
- Length: 0.97 m

Mass (kg)	Frequency (Hz)
1	48.47
3	81.68
5	106.93
7	127.12
10	154.99

	● Set	■ Set
	Weight (kg)	Frequency (Hz)
1	1	48.47
2	3	81.68
3	5	106.93
4	7	127.12
5	10	154.99
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- The relationship between weight and frequency is a power function