

Dimensional Analysis - Using units to help solve problems

$$100 \text{ cm} = 1 \text{ m}, \quad 1000 \text{ m} = 1 \text{ km}, \quad 3600 \text{ s} = 1 \text{ hr}$$

ex: How many hours are in 6 weeks

- 6 weeks, 3600 s = 1 hr, 24 hrs = 1 day, 7 day = 1 week

- unknown — hours

$$6 \text{ weeks} \left(\frac{7 \text{ day}}{\text{week}} \right) \left(\frac{24 \text{ hrs}}{\text{day}} \right)$$

$$= \underline{1008} \text{ hours}$$

$$= 1.0 \times 10^3 \text{ hours}$$

ex 30 m/s \rightarrow km/h

- 30 m/s, 3600 s/h, 1000 m/km

$$30 \frac{\text{m}}{\text{s}} \left(\frac{1 \text{ km}}{1000 \text{ m}} \right) \left(\frac{3600 \text{ s}}{\text{h}} \right) = 108 \frac{\text{km}}{\text{h}}$$

$$\text{ex } 135 \frac{\text{km}}{\text{h}} \left(\frac{1000 \text{ m}}{1 \text{ km}} \right) \left(\frac{1 \text{ h}}{3600 \text{ s}} \right) = 37.5 \text{ m/s}$$

Graphing: Parts of a graph

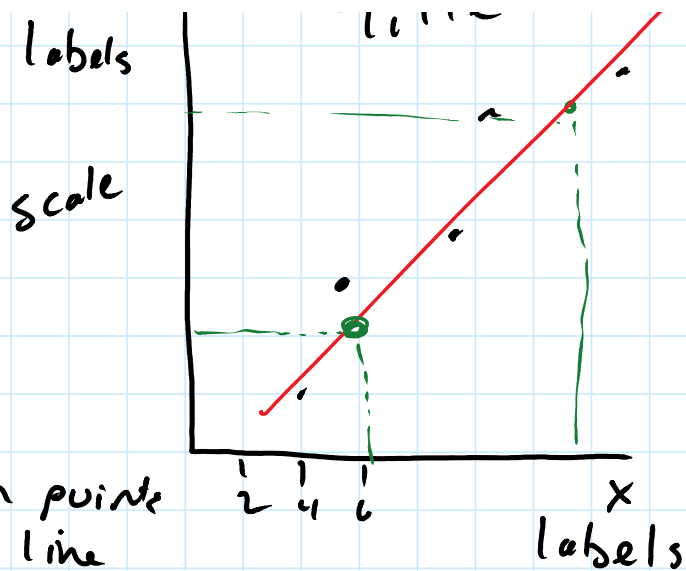
1) axis

2) labels

labels

Title

- 1) axis
- 2) labels
- 3) data points ←
- 4) scale, values
- 5) line of best fit



6) slope - based on points on the line

7) Title

$$= \frac{y_2 - y_1}{x_2 - x_1}$$

