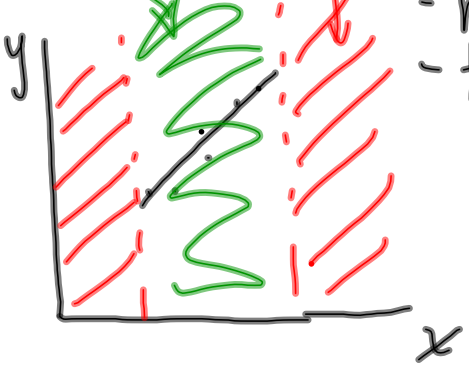
Quiz - Graphing Linear Data

- Plot a graph of y vs x
  - title
  - axes labelled (units)
  - use a consistent scale
  - axes start at (0,0), no squiggles!
  - don't connect the points
  - line of best fit
  - use a full sheet of graph paper
- Find the equation of the line of best fit (use appropriate variables)
  - show your work
  - calculate "b" (do not eyeball)
- Use the graph or equation to make a prediction. Two types of predictions:

interpolation - within the data

extrapolation - outside the data
- not reliable
- the trend might change



Calculations with Significant Digits

Adding | Subtracting

$$\begin{array}{rr} 25.3 & g \\ 148 & g \\ +\ 1.42 & g \\ \hline 174.72 & g \end{array}$$

Round to this place value.... can only have 1 uncertain digit

$\boxed{175\ g}$

When adding | subtracting you round the final answer to the least precise place value used in the calculation.

Multiplying | Dividing

$$\begin{array}{rr} 14.8 & m \quad (3\,sd) \\ \times\ 1.2 & m \quad (2\,sd) \\ \hline 296 & \\ 148 & \\ \hline 17.76 & m^2 \end{array}$$

round to this place value.... only 1 uncertain digit.

$\boxed{18\ m^2}$ (2sd)

When multiplying | dividing, you round the final answer to the least number of significant digits used in the calculations.

$+/-$ $\Rightarrow$ place value

$\times/\div$ $\Rightarrow$ s.d.s

BASIC SKILL

21. $\frac{2.674\text{ m}}{2.0\text{ m}} = 1.337$ (2sd; 2sd)

$\doteq 1.3$

22. $5.25\text{ L} \times 1.3\text{ L} = 6.825\text{ L}^2$ (2sd; 2sd)

$\doteq 6.8\text{ L}^2$

What if you wanted to use 3sd?

6.82 ← round to even #

23. $9.0\text{ cm} + 7.66\text{ cm} + 5.44\text{ cm} = 22.10\text{ cm}$ (place value; least precise)

$= 22.1\text{ cm}$

24. $10.07\text{ g} - 3.1\text{ g} = 6.97\text{ g}$ (least precise)

$\doteq 7.0\text{ g}$

TO DO:

1. Finish Smartie Lab (due Wed)
2. Physics: A Mathematical Science (handout)
   - use red book (PPP) - Chapter 2
3. REVIEW: #2