Significant figures in calculations

Multiplication and division: Round the answer to the number of significant figures in the measurement that has the least significant figures.

Examples:

34.92 mL x 2.7 g/mL

334.88765 m ÷ 35.1 s

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Significant figures in calculations

Multiplication and division: Round the answer to the number of significant figures in the measurement that has the least significant figures.

Examples:

34.92 mL x 2.7 g/mL

94 g

334.88765 m ÷ 35.1 s

9.54 m/s

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Addition and Subtraction – Answer is rounded off to the decimal place where the least precise measurement ends.

Example

13.462 g

- 11.7 g

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Addition and Subtraction – Answer is rounded off to the decimal place where the least precise measurement ends.

Example

13.462 g

- 11.7 g

1.8 g

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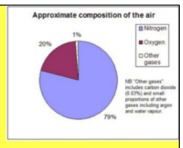
Uncertainties in Calculations (11.2.2)

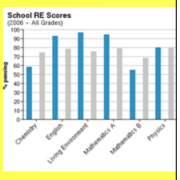
Addition and Subtraction – Absolute uncertainties <u>always add.</u>

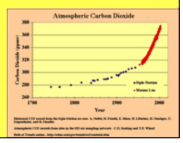
Multiplication and Division – Percentage uncertainties add. OR you can carry uncertainties through calculations (determine range of possible results)

Graphs (11.2)

- Graphs are good tools for representing data visually.
- You should be able to determine the relationship between variables (direct, inverse…)
- You should be able to determine the best type of graph to use to display data.
- Dependent variable on y-axis and independent variable on x-axis.







<u>What you should be able to do (11.2)</u>

- Draw best-fit lines through data on a graph
- Determine slope (gradient) and intercept from graph, including units.

Example: Graph the data in the table, draw a best fitting straight line, and then determine the slope of the line, including units.

Mass (g)	Volume (mL)
10.18 g	12.78 mL
18.52 g	13.95 mL
27.41 g	15.36 mL
40.83 g	17.10 mL
52.58 g	18.92 mL