

YEAR 8 MATHS - SUPPORT – SPRING 2

1) Number – Rounding and Estimating

Rounding: makes numbers easier to understand and use. Always look at the column to the right of that which you are rounding.

Examples

to the nearest 10	362	rounds to	360	2137	rounds to	2140
to the nearest 100	5941	→	5900	8681	→	8700
to the nearest 1000	6456	→	6000	7568	→	8000
To the nearest whole number,	3.5	rounds to	4	5.49	rounds to	5

Estimating / approximating: uses rounded numbers to makes calculations easier to perform. Use when a precise answer is not needed, or to quickly check a calculator's answer.

Approximate calculations by rounding to the nearest 10.

Examples

- | | |
|--|--|
| a) $327 + 244 \rightarrow 330 + 240 \rightarrow 570$ | c) $319 - 108 \rightarrow 320 - 110 \rightarrow 210$ |
| b) $42 \times 9 \rightarrow 40 \times 9 \rightarrow 360$ | d) $22 \times 19 \rightarrow 20 \times 20 \rightarrow 400$ |

3) Data Handling - Describing Data

Summary measures: data can be summarised by calculating an average (mean, median or mode) and a measure of consistency (the range).

The marks achieved by 6 pupils in a test were:
6, 7, 3, 2, 5, 7

a) Mean mark = $\frac{6+7+3+2+5+7}{6} = 5$

b) Arrange the marks in order: 2 3 5 6 7 7

↑
The median is the half-way number

Median = $\frac{5+6}{2} = 5.5$

c) Mode = 7 because there are more 7's than any other number.

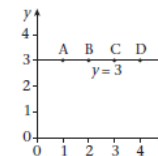
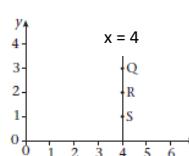
d) Range = highest number – lowest number

=	7	-	2
=	5		

Charts and Graphs: data can also be summarised by drawing an appropriate chart – e.g. bar chart, frequency polygon, pie chart or stem and leaf diagram.

2) Algebra – Drawing Graphs

Horizontal / vertical lines: have equations based on an x or y coordinate that never changes.



Straight line graphs: are drawn by using the equation to find pairs of coordinates to plot. At least 3 must be calculated and plotted.

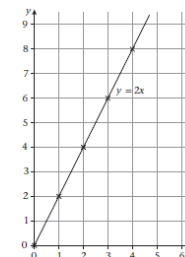
Example

Draw the graph of $y = 2x$.

When $x = 2$, $y = 2 \times 2 = 4$ (2, 4)

When $x = 3$, $y = 2 \times 3 = 6$ (3, 6)

When $x = 4$, $y = 2 \times 4 = 8$ (4, 8)



4) Number – Multiplying by Decimals

Fraction, decimal, percentage equivalence

$1/10 = 0.1 = 10\%$

$3/5 = 6/10 = 0.6 = 60\%$

$3/10 = 0.3 = 30\%$

$0.01 = 1/100 = 1\%$

So multiplying by 0.1 is the same as multiplying by 1/10 or dividing by 10.

Examples:

$5 \times 0.1 = 5 \times \frac{1}{10} = 5 \div 10 = 0.5$

$7 \times 0.1 = 7 \times \frac{1}{10} = 7 \div 10 = 0.7$

$0.2 \times 0.1 = 0.2 \times \frac{1}{10} = 0.2 \div 10 = 0.02$

$0.35 \times 0.1 = 0.35 \times \frac{1}{10} = 0.35 \div 10 = 0.035$

$4 \times 0.01 = 4 \times \frac{1}{100} = 4 \div 100 = 0.04$

$17 \times 0.01 = 17 \times \frac{1}{100} = 17 \div 100 = 0.17$