


Week 1: Indices (Revision)

Week 2: Rounding & Estimating

Week 3: Reflection & Symmetry

index  A number which tells you how many times a number is used in a multiplication e.g. $2^3 = 2 \times 2 \times 2$

base The number that gets multiplied when using an index.

BASE → **3** ^{**INDEX** 5} ← **INDEX** = $3 \times 3 \times 3 \times 3 \times 3$

3 was multiplied to itself five times.

Laws of indices

$a^m \times a^n = a^{m+n}$

$\frac{a^m}{a^n} = a^m \div a^n = a^{m-n}$

$(a^m)^n = a^{m \times n}$

Examples

$3^8 \times 3^2 = 3^{10}$

$\frac{3^8}{3^2} = 3^8 \div 3^2 = 3^6$

$(3^8)^2 = 3^{16}$

3 Times Tables	$1 \times 3 = 3$	$4 \times 3 = 12$	$7 \times 3 = 21$	$10 \times 3 = 30$
	$2 \times 3 = 6$	$5 \times 3 = 15$	$8 \times 3 = 24$	$11 \times 3 = 33$
	$3 \times 3 = 9$	$6 \times 3 = 18$	$9 \times 3 = 27$	$12 \times 3 = 36$

first significant figure (sig fig) The first non-zero digit in a number.

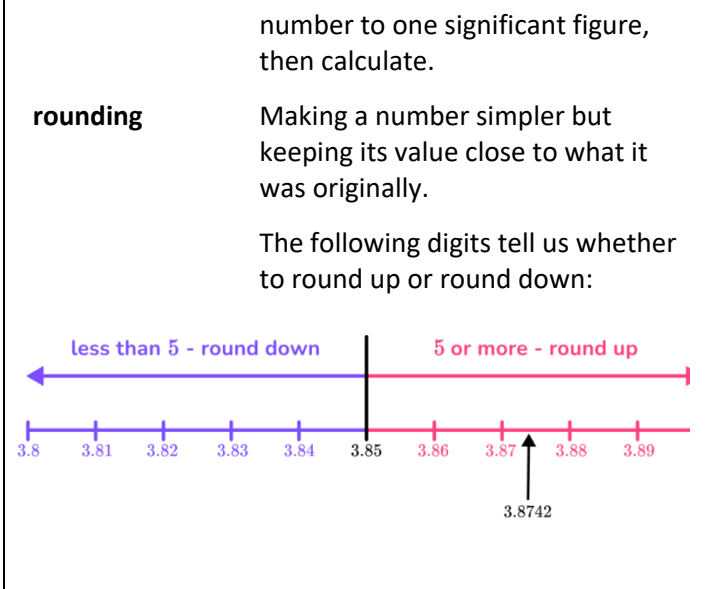
eg. 0.000264
The first significant figure is 2.
Rounded to 1 sig fig = 0.0003.

eg. 37,283
The first significant figure is 3.
Rounded to 1 sig fig = 40,000.

estimate To estimate means to round each number to one significant figure, then calculate.

rounding Making a number simpler but keeping its value close to what it was originally.

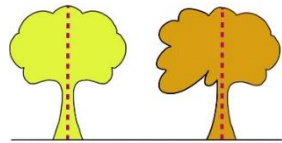
The following digits tell us whether to round up or round down:



5 Times Tables	$1 \times 5 = 5$	$4 \times 5 = 20$	$7 \times 5 = 35$	$10 \times 5 = 50$
	$2 \times 5 = 10$	$5 \times 5 = 25$	$8 \times 5 = 40$	$11 \times 5 = 55$
	$3 \times 5 = 15$	$6 \times 5 = 30$	$9 \times 5 = 45$	$12 \times 5 = 60$

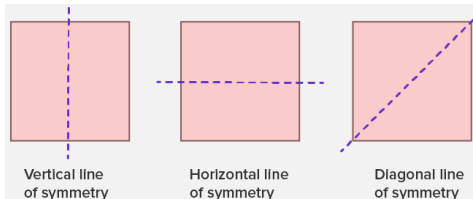
reflection An image or shape as it would be seen in a mirror.

symmetry A shape is *symmetrical* if it can be divided into two identical halves.



Symmetrical Asymmetrical

line of symmetry The line that divides these two halves is called the line of symmetry.



Vertical line of symmetry Horizontal line of symmetry Diagonal line of symmetry

horizontal A line that runs from left to right \longleftrightarrow

vertical A line that runs up and down (perpendicular to horizontal) \updownarrow

congruent Two shapes that are exactly the same size and shape. They are identical.

vertex A *corner* where two line segments meet.

6 Times Tables	$1 \times 6 = 6$	$4 \times 6 = 24$	$7 \times 6 = 42$	$10 \times 6 = 60$
	$2 \times 6 = 12$	$5 \times 6 = 30$	$8 \times 6 = 48$	$11 \times 6 = 66$
	$3 \times 6 = 18$	$6 \times 6 = 36$	$9 \times 6 = 54$	$12 \times 6 = 72$

Extension work – Codes for related Independent Learning tasks on **Sparx Maths** Click on 'Independent Learning' on home page then enter code in search box

Sparx Maths

M120 Simplifying using index laws

M608 Index rules (positive)

M150 Index rules (negative)

Sparx Maths

M994 Rounding integers using significant figures

M131 Rounding decimals using significant figures

Sparx Maths

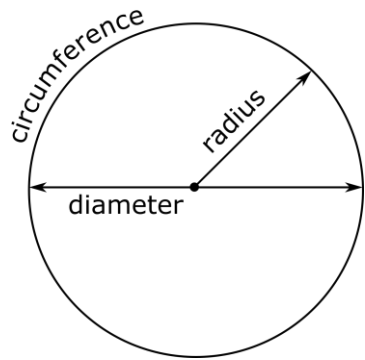
M290 Reflection

M523 Symmetry

Week 4: Circles (Revision)

Week 5: Averages & Range

Week 6: Representing Data



The diameter is double the radius.

$$\frac{\pi}{3,14}$$

$Pi = \pi \approx 3.14$
 π is a constant that links circumference and diameter.



Circumference = $\pi \times \text{diameter}$



Area = $\pi \times \text{radius}^2$

- total** Result of adding all the numbers together. *Also known as the sum.*
- average** A single number used to represent a collection of values.
Mean, median and mode are all types of average.
- mean** Sum of the values \div number of values.
- median** Middle value from an ordered list.
If there are two numbers in the middle, add them together then divide by 2 to find the median.
- mode** Value that appears the most.
- range*** The difference between the largest and smallest values.
**The range is technically a measure of spread, not an average.*

Eg. Goals Scored Over the Last 7 Games

1 3 4 6 6 7 8

mean 5

average

mode 6

most common

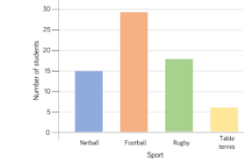
median 6

middle

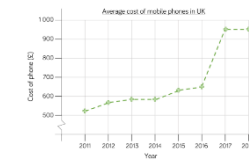
range 7

largest - smallest

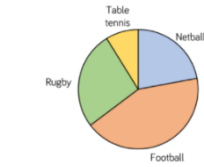
bar chart The height of the bar tells you the frequency.
There are gaps between bars.



line graph Plotted points joined with straight lines.
Shows change over time.



pie chart Shows a *proportion* of the whole amount, not exact values.
Angle at the centre determines the size of each section.



frequency The number of times an event occurs.

tally Uses lines to record frequencies quickly. The number 5 is represented by

8 Times Tables

1 x 8 = 8	4 x 8 = 32	7 x 8 = 56	10 x 8 = 80
2 x 8 = 16	5 x 8 = 40	8 x 8 = 64	11 x 8 = 88
3 x 8 = 24	6 x 8 = 48	9 x 8 = 72	12 x 8 = 96

11 Times Tables

1 x 11 = 11	4 x 11 = 44	7 x 11 = 77	10 x 11 = 110
2 x 11 = 22	5 x 11 = 55	8 x 11 = 88	11 x 11 = 121
3 x 11 = 33	6 x 11 = 66	9 x 11 = 99	12 x 11 = 132

12 Times Tables

1 x 12 = 12	4 x 12 = 48	7 x 12 = 84	10 x 12 = 120
2 x 12 = 24	5 x 12 = 60	8 x 12 = 96	11 x 12 = 132
3 x 12 = 36	6 x 12 = 72	9 x 12 = 108	12 x 12 = 144

Extension work – Codes for related Independent Learning tasks on [Sparx Maths](#) Click on 'Independent Learning' on home page then enter code in search box



- M595** Parts of a circle
- M169** Circumference
- M231** Area of circles



- M940** Calculating the mean
- M934** Calculating the median
- M328** Calculating the range



- M738** Interpreting bar charts
- M183** Interpreting line graphs
- M165** Interpreting pie charts