

1 Number - Fractions

$$1) \frac{1}{3} \times \frac{2}{5} = \frac{2}{15}$$

$$2) \frac{3}{5} \div \frac{2}{7} = \frac{3}{5} \times \frac{7}{2} = \frac{21}{10} = 2 \frac{1}{10}$$

$$3) \frac{3}{4} + \frac{2}{9} = \frac{27}{36} + \frac{8}{36} = \frac{35}{36}$$

$$4) \frac{5}{8} - \frac{1}{4} = \frac{5}{8} - \frac{2}{8} = \frac{3}{8}$$

Work with mixed numbers

$$2\frac{1}{4} \times 1\frac{3}{5}$$

$$3\frac{1}{3} \div \frac{5}{6}$$

$$2\frac{3}{5} - \frac{7}{8}$$

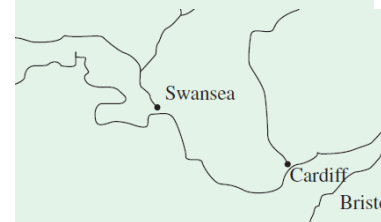
2 Number – Ratio and scale

- 1) Simplify the ratio 25:65
- 2) Share £63 into the ratio 4:5
- 3) Jack and Tom share some sweets in the ratio 2:3. If Tom gets 18 sweets, how many sweets did they share?

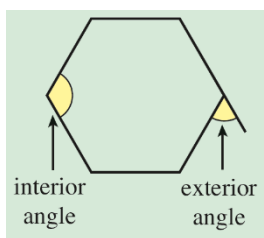
Map scales

On a map of scale 1:2 000 000, Swansea and Cardiff appear 3 cm apart.

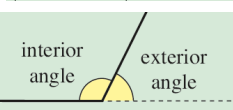
What is the actual distance between the towns?



3 Shape – Polygons



Number of edges	Polygon name
5	pentagon
6	hexagon
7	heptagon



The sum of the exterior angles of a polygon = 360°

For a polygon with n sides:

Sum of interior angles = $(n - 2) \times 180^\circ$

4 Data – Average and range

Number of pencils	0	1	2	3	4
Frequency (number of children)	3	5	4	3	1

Use the table to work out the mean number of pencils.

$$\text{mean} = \frac{(3 \times 0) + (5 \times 1) + (4 \times 2) + (3 \times 3) + (1 \times 4)}{16}$$

$$\text{mean} = \frac{26}{16} = 1.625$$

total number of children

Calculate an estimate for the mean

Length (cm)	Frequency
0–10	5
10–20	11
20–40	7
40–50	7

- Mean
- Median
- Mode
- Range

5 Algebra – Sequences

2, 5, 8, 11, ...

- Next term?
- n^{th} term?
- Is 500 in this sequence? Why?

Quadratic because n^2 is the highest power of n in the formula

3, 9, 19, 33, 51, ...

- Second difference?
- Next term?
- n^{th} term?

1	2	3	4	5
65 – 70	480 – 481 560	561 – 564	414 – 418	198 247 – 249