

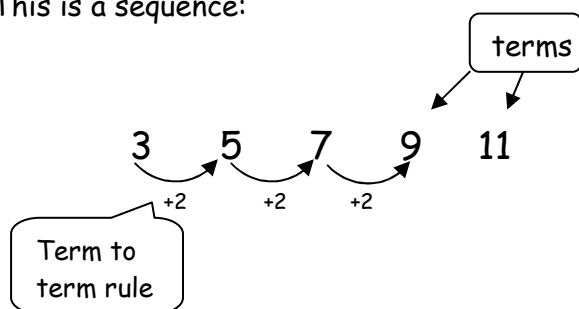
Level 4 PROMPT sheet

4/1 Number Patterns

- A list of numbers with a pattern is called a **SEQUENCE**
- The numbers are called **TERMS**
- A **'TERM TO TERM RULE'** tells you how to get from one term to the next

It might be add, subtract, multiply or divide by something

This is a sequence:



4/2 Multiples, factors & square numbers

- **FACTORS** are what divides exactly into a number

e.g. Factors of 12 are:

1	12
2	6
3	4

- **MULTIPLES** are the times table answers

e.g. Multiples of 5 are:

5 10 15 20 25

- **SQUARES** are the result of multiplying a number by itself

e.g. $1 \times 1 = 1$
 $2 \times 2 = 4$
 $3 \times 3 = 9$

Square numbers

4/3 Multiply & Divide by 10 or 100

- To **multiply** by 10, move each digit one place to the **left**

e.g. $35.6 \times 10 = 356$

Hundreds	Tens	Units	•	tenths
	3	5	•	6
3	5	6	•	

- To **divide** by 10, move each digit one place to the **right**

e.g. $35.6 \div 10 = 3.56$

Tens	Units	•	tenths	hundredths
3	5	•	6	
	3	•	5	6

- To **multiply** by 100, move each digit 2 places to the **left**
- To **divide** by 100, move each digit 2 places to the **right**

4/3 Multiply & Divide by 10 or 100

AN ALTERNATIVE METHOD

Instead of moving the digits
Move the decimal point the opposite way

4/4 Fraction, decimal, percentage equivalents

LEARN THESE:

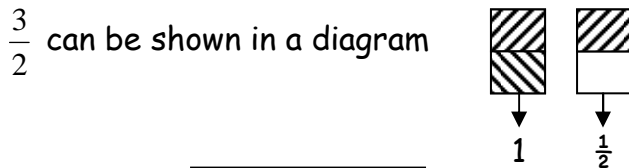
$$\frac{1}{4} = 0.25 = 25\%$$

$$\frac{1}{2} = 0.5 = 50\%$$

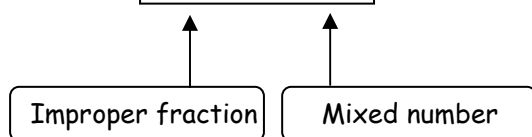
$$\frac{3}{4} = 0.75 = 75\%$$

4/5 Convert mixed numbers to improper fractions & vv

- An improper fraction is top heavy & can be changed into a mixed number



$$\frac{3}{2} = 1\frac{1}{2}$$



- A mixed number can be changed back into an improper fraction

$$1\frac{1}{2} = \frac{3}{2}$$

$$2\frac{3}{4} = \frac{11}{4}$$

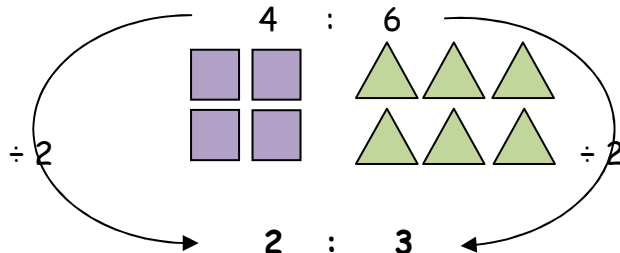
4/6 Simple ratio



The ratio of squares to triangles can be written

squares : triangles

4 : 6



Ratios can be simplified just like fractions

4/7 Use inverse operations

- To undo ADD, just SUBTRACT

e.g. $36 + \boxed{23} = 59$ ($59 - 36 = 23$)

- To undo MULTIPLY, just DIVIDE

e.g. $7 \times \boxed{3} = 21$ ($21 \div 7 = 3$)

- Use balancing:

$$20 + \boxed{} = 20 \times 4$$

$$20 + \boxed{} = 80$$

$$20 + \boxed{60} = 80 \quad (80 - 20 = 60)$$

4/8 Brackets in calculations

A calculation must be done in the correct order

- Brackets
- Indices, Division and Multiplication
- Addition and Subtraction

Using this order I get 3 different answers:

$$3 + 6 \times 5 - 1 = 32$$

$$(3 + 6) \times 5 - 1 = 44$$

$$3 + 6 \times (5 - 1) = 27$$

It all depends on where the bracket is

4/9 Times tables up to 10x10

It is important to know the times tables and the division facts that go with them

Example

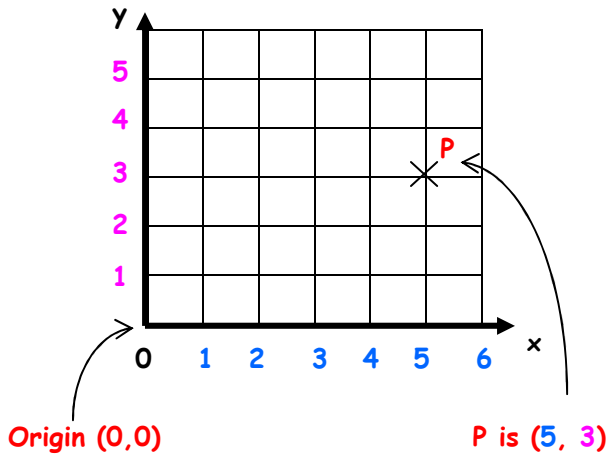
$$9 \times 7 = 63$$

$$63 \div 9 = 7$$

$$63 \div 7 = 9$$

4/11 Coordinates in first quadrant

- The horizontal axis is the x-axis
- The vertical axis is called the y-axis
- The origin is where the axes meet
- A point is described by two numbers
The 1st number is off the x-axis
The 2nd number is off the y-axis



4/12 Written methods for multiplication

e.g. 38×7

30	8
7	210
$210 + 56 = \underline{266}$	

4/12 Written methods for division

e.g. $125 \div 5$ BUS SHELTER METHOD

0	2	5
5)	125

e.g. $125 \div 5$ CHUNKING METHOD

5)	125	
		100	(20 × 5)
		25	(5 × 5)
		<u>25</u>	

$125 \div 5 = \underline{25}$

4/12 Written methods for addition

- Line up the digits in the correct columns

e.g. $48 + 284 + 9$

	H	T	U	
		4	8	
	2	8	4	
1	2	9	+	
<u>3</u>	<u>4</u>	<u>1</u>		

4/12 Written methods for subtraction

- Line up the digits in the correct columns

e.g. $645 - 427$

	H	T	U	
	6	4	5	
	4	2	7	-
	<u>2</u>	<u>1</u>	<u>8</u>	

4/12 Written methods for multiplication

e.g. 38×7

38	
<u>57</u>	×
<u>266</u>	

4/13 Add & subtract decimals

- Line up the digits and the decimal points

e.g. $28.5 + 0.37 + 7$

28.5
0.37
<u>7</u>
<u>35.87</u>

4/13 Multiply a decimal

e.g. 28.5×3

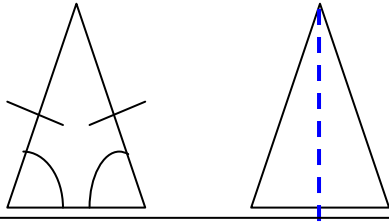
28.5	
<u>213</u>	×
<u>85.5</u>	

4/14 Properties of 2D shapes

TRIANGLES - angles add up to 180°

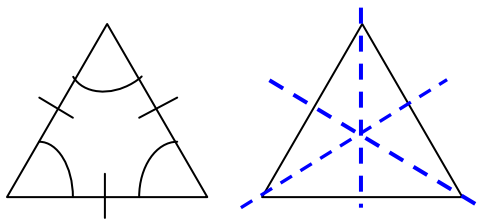
Isosceles triangle

- 2 equal sides
- 2 equal angles
- 1 line of symmetry
- No rotational symmetry



Equilateral triangle

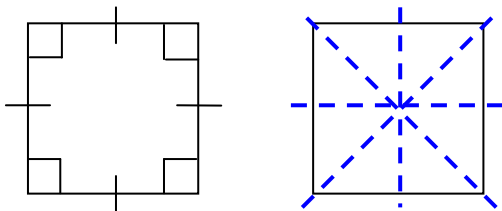
- 3 equal sides
- 3 equal angles - 60°
- 3 lines of symmetry
- Rotational symmetry order 3



QUADRILATERALS - all angles add up to 360°

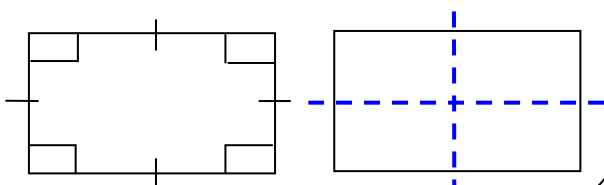
Square

- 4 equal sides
- 4 equal angles - 90°
- 4 lines of symmetry
- Rotational symmetry order 4



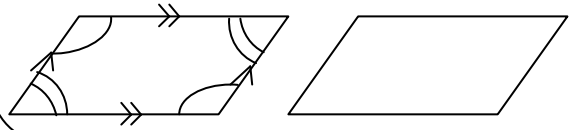
Rectangle

- Opposite sides equal
- 4 equal angles - 90°
- 2 lines of symmetry
- Rotational symmetry order 2



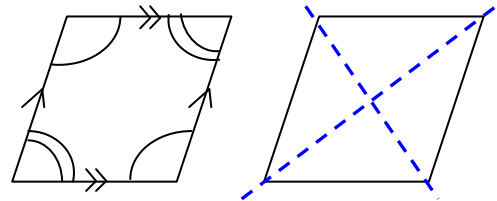
Parallelogram

- Opposite sides parallel
- Opposite angles equal
- NO lines of symmetry
- Rotational symmetry order 2



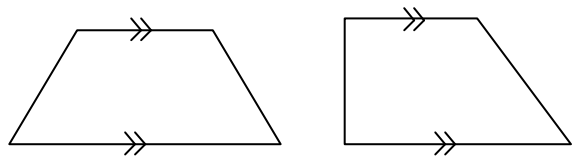
Rhombus (like a diamond)

- Opposite sides parallel
- Opposite angles equal
- 2 lines of symmetry
- Rotational symmetry order 2



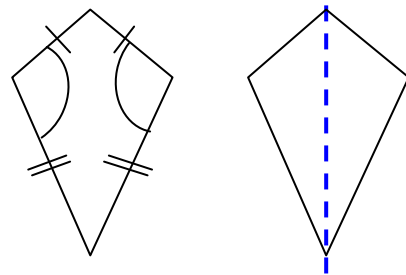
Trapezium

- ONE pair opposite sides parallel



Kite

- One pair of opposite angles equal
- 2 pairs of adjacent sides equal
- ONE line of symmetry
- No rotational symmetry

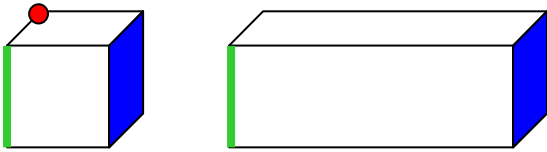


4/14 Properties of 3D shapes

PRISMS- same cross section through length

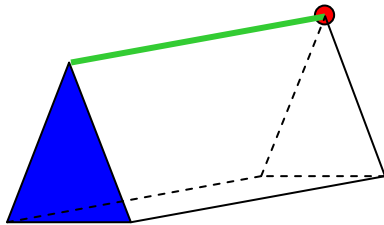
Cube and cuboid

- 6 faces
- 12 edges
- 8 vertices

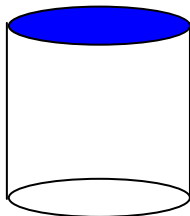


Triangular prism

- 5 faces
- 9 edges
- 6 vertices



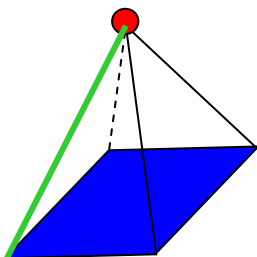
Cylinder - special prism



PYRAMIDS- a point opposite the base

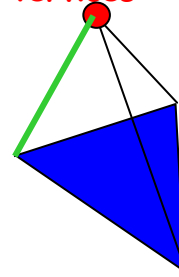
Pyramid - square based

- 5 faces
- 8 edges
- 5 vertices

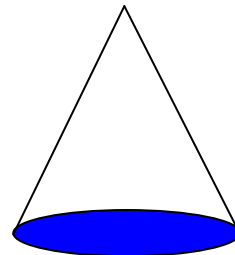


Pyramid - triangular based

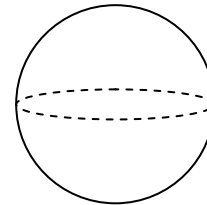
- 4 faces
- 6 edges
- 4 vertices



Cone - special pyramid

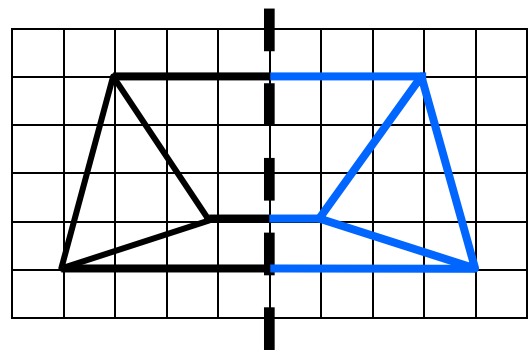


SPHERES- ball shape

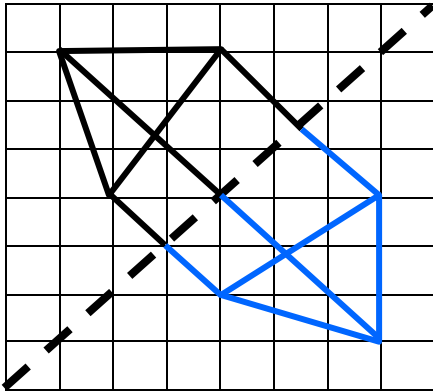


4/15 Reflect in a mirror line

- To reflect a shape in a vertical line



- To reflect a shape in a 45° line



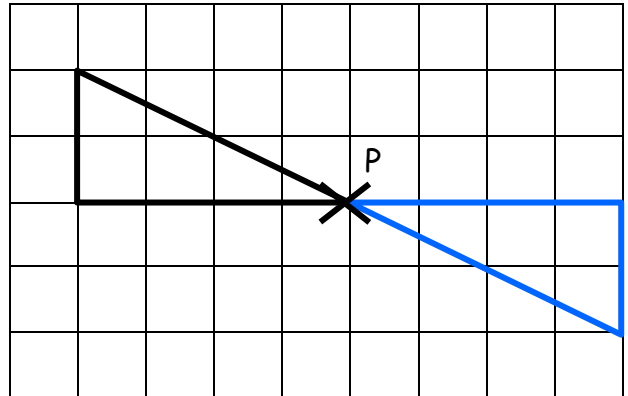
Distances from shape to mirror and mirror to reflection must be same

Tracing paper is useful:

- Trace the shape & the mirror line
- Flip the tracing paper over the mirror line
- Redraw the shape in its new position

4/16 Rotate a shape

- To rotate a shape 180° about P

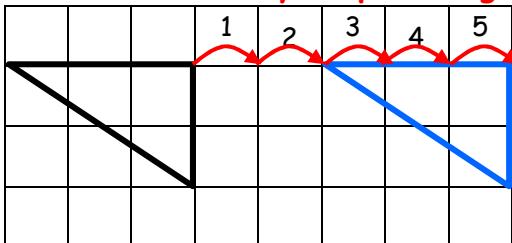


Tracing paper is useful:

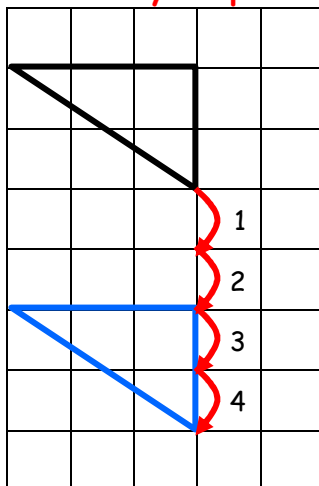
- Trace the shape
- Hold the shape down with a pencil
- Rotate tracing paper
- Redraw the shape in its new position

4/16 Translate a shape

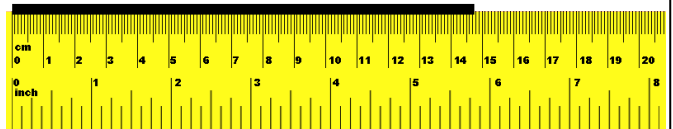
- Move horizontally 5 spaces right



- Move vertically 4 spaces down



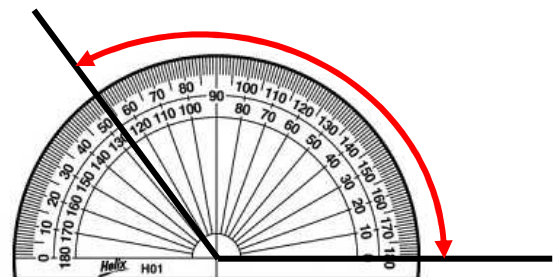
4/17 Use a ruler accurately



Measure from 0

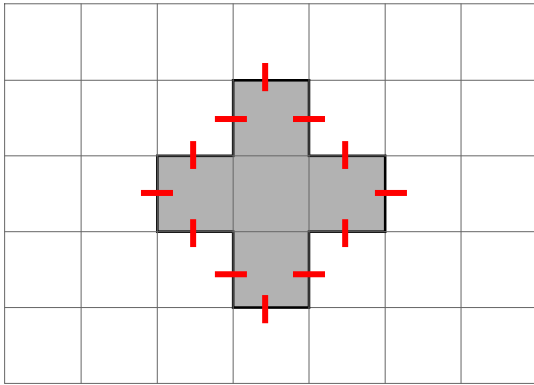
This line is 14.7cm long

Use a protractor accurately

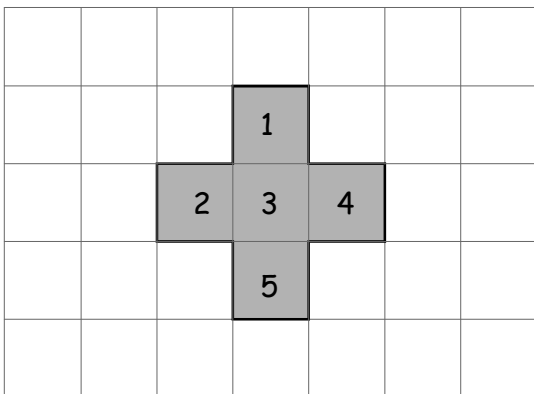


Count the number of degrees between the 2 arms of the angle. This angle is 127°

4/18 Find perimeter of simple shapes



- **Perimeter** is round the **OUTSIDE**
Perimeter of this shape = 12cm



- **Area** is the number of squares **INSIDE**
Area of this shape = 5cm²

4/19 Record using a frequency table

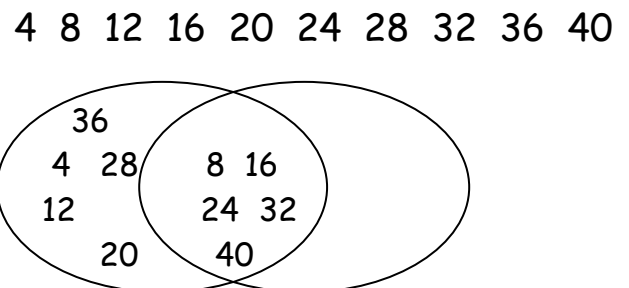
Score on dice	Tally	Frequency
1		10
2		4
3		6
4		3
5		8
6		1

4/19 Record using a grouped frequency table

Weight(w)	Tally	Frequency
$15 \leq w < 20$		
$20 \leq w < 25$		
$25 \leq w < 30$		
$30 \leq w < 35$		
$35 \leq w < 40$		

4/20 Use a Venn Diagram

- To place these numbers onto a Venn diagram



Multiples of 4 Multiples of 8

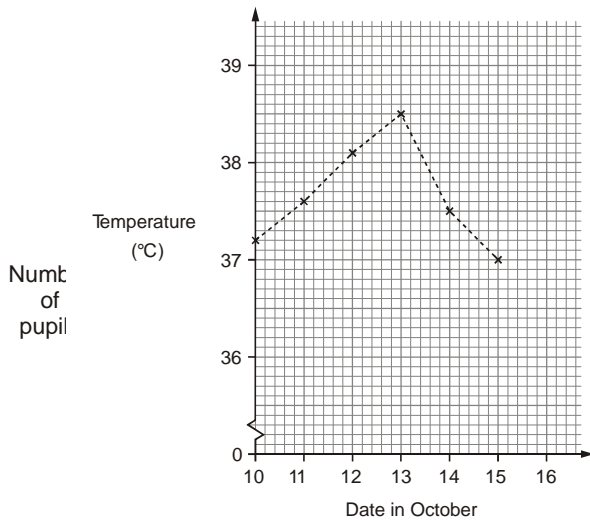
- To place these numbers onto a Carroll diagram

25 27 14 47 36 37 67
64 16 9 11

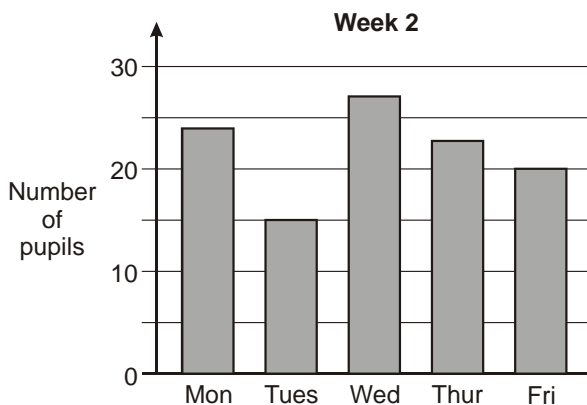
	Square number	Not a square number
Odd number of factors	9 16 25 36 64	
Even number of factors		11 14 27 47 37 67

4/21 Construct/interpret graphs

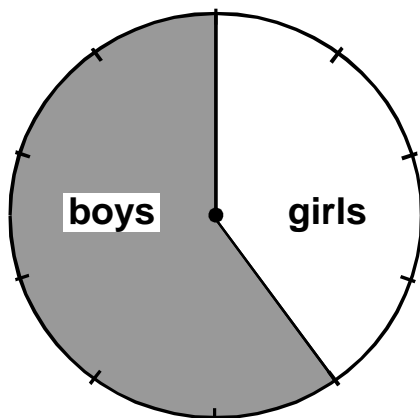
- **Line graph - temperature**



- **Bar graph - Number of pupils at a youth club**



- **Pie chart - Number of pupils in the yard**



4/22 Mode and Range

- **Mode is the most frequent measure**
- **Range is highest minus lowest measure**

4/23 Language of probability

- **Probability words are used to describe how likely it is that an event will happen.**

Examples of probability words are

- **certain**
- **likely**
- **even chance**
- **unlikely**
- **impossible**

Other words:

- **Equally likely** - when all outcomes have the same chance of occurring
- **Biased** - when all outcomes do NOT have the same chance of occurring