

# Year 3 Maths Help and Tips

## 3/1 Count in multiples

Now you must learn these multiples

Multiples of 4	Multiples of 8	Multiples of 50	Multiples of 100
0	0	0	0
4	8	50	100
8	16	100	200
12	24	150	300
16	32	200	400
20	40	250	500
24	48	300	600
28	56	350	700
32	64	400	800
36	72	450	900
40	80	500	1000

hundreds	tens	ones
3	5	2

- To find 10 more or 10 less, it is the 'tens digit' that changes  
10 more than 352 becomes 362  
10 less than 352 becomes 342

hundreds	tens	ones
3	5	2

- To find 100 more or 100 less, it is the 'hundreds' digit that changes  
100 more than 352 becomes 452  
100 less than 352 becomes 252

## 3/2 Recognise place value

hundreds	tens	ones
3	5	2

352 means 300 + 50 + 2

## 3/3 Numbers in words and figures

In order to put FIGURES into WORDS, we must try to imagine that the number is in a PLACE VALUE table like this one

Hundred	Ten	Ones
1	4	7
One hundred	forty	seven
One hundred and forty-seven		

Hundred	Ten	Ones
4	0	9
Four hundred		nine
Four hundred and nine		

## 3/3 Compare and order numbers

- Write numbers lining up the digits

Hundred	Ten	Ones
1	4	7
6	3	2
1	7	6
1	6	2

- Begin at the hundreds and compare  
632 is the biggest

Hundred	Ten	Ones
1	4	7
<del>6</del>	<del>3</del>	<del>2</del>
1	7	6
1	6	2

- Move to the tens and compare  
Order is: 632, 176, 162, 147

### 3/4 Estimating

- Eyeball estimate**

Here are 10

Use this to estimate larger quantities



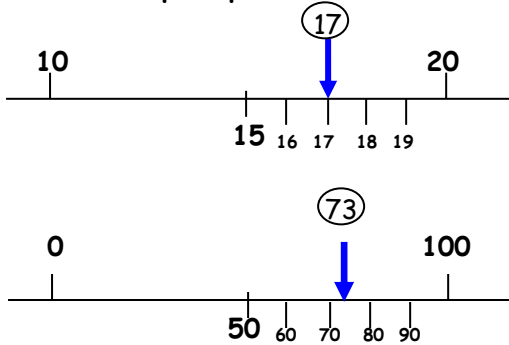
- Estimate by sampling**

Count your pulse over 15seconds  
 Multiply the number of pulses by 4 to get the pulse rate over 1 minute ( $15 \times 4 = 60$ seconds)



- Estimate on a number line**

Fill in the half way number first  
 Then split up the half with the arrow



- Estimate by rounding off a number**  
 To make a sum easier and give a rough answer

Example: 28 could be rounded to 30  
 £1.95 could be rounded to £2

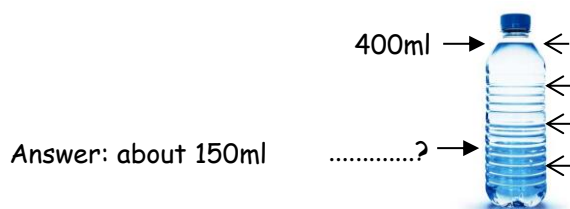
### 3/5 Solve problems by estimating

Example: Estimate the cost of 5 magazines at £1.95 each



Answer: It is about  $5 \times £2 = £10$

Example: When full this bottle holds 400ml. Estimate how much water is left in this bottle.



### 3/6 Add 3 digit numbers mentally

Partitioning

$$236 + 319$$

$$\begin{aligned} & \leftarrow \leftarrow \leftarrow \leftarrow \leftarrow \leftarrow \leftarrow \\ 200 & + 30 + 6 + 300 + 10 + 9 \\ & = 500 + 40 + 15 \\ & = 555 \end{aligned}$$

### Subtract 3 digit numbers mentally

$$363 - 126$$

Partitioning

$$\begin{aligned} & \leftarrow \\ 363 & - 100 - 20 - 6 \\ & = 263 - 20 - 6 \\ & = 243 - 6 \\ & = 237 \end{aligned}$$

Counting on from 126

$$\begin{aligned} (126) & + 4 \\ 130 & + 3 \\ 133 & + 230 \\ & = 363 \\ \text{Answer} & = 237 \end{aligned}$$

### 3/7 Written method for addition

- Line up the digits in the correct columns**

e.g.  $132 + 239$

H	T	O
1	3	2
2	3	9
+		
3	7	1

### Written method for subtraction

- Line up the digits in the correct columns**

e.g.  $327 - 119$

H	T	O
3	2	7
1	1	9
-		
2	0	8

### 3/8 Estimate answers to calculations

- Round off each number
- Then do the calculation
- Check using the inverse

Example: Estimate  $83 - 28$

$$80 - 30 = 50$$

$$\text{Inverse: } 50 + 30 = 80 \checkmark$$

### 3/9 Missing number problems

**Fact family for +/-**

$$34 + 23 = 57$$

$$57 - 23 = 34$$

$$23 + 34 = 57$$

$$57 - 34 = 23$$

### 3/10 Know the 3, 4 and 8 times tables

1 x 3 = 3	1 x 4 = 4	1 x 8 = 8
2 x 3 = 6	2 x 4 = 8	2 x 8 = 16
3 x 3 = 9	3 x 4 = 12	3 x 8 = 24
4 x 3 = 12	4 x 4 = 16	4 x 8 = 32
5 x 3 = 15	5 x 4 = 20	5 x 8 = 40
6 x 3 = 18	6 x 4 = 24	6 x 8 = 48
7 x 3 = 21	7 x 4 = 28	7 x 8 = 56
8 x 3 = 24	8 x 4 = 32	8 x 8 = 64
9 x 3 = 27	9 x 4 = 36	9 x 8 = 72
10 x 3 = 30	10 x 4 = 40	10 x 8 = 80
11 x 3 = 33	11 x 4 = 44	11 x 8 = 88
12 x 3 = 36	12 x 4 = 48	12 x 8 = 96

**Fact family for x/÷**

$$9 \times 8 = 72$$

$$72 \div 9 = 8$$

$$8 \times 9 = 72$$

$$72 \div 8 = 9$$

### 3/11 Multiply & divide

- A 2-digit number by a single digit

#### Column method

$$\begin{array}{r} 38 \\ \times 3 \\ \hline 114 \\ \hline \end{array}$$

#### Grid method

	30	8
3	90	24

$$90 + 24 = \underline{114}$$

#### Partitioning method

$$\begin{aligned} 38 \times 3 \\ = 30 \times 3 + 8 \times 3 \\ = 90 + 24 \\ = 114 \end{aligned}$$

### 3/12 Multiply & divide

- Look for connections between two sums
- Remember the fact family for x/÷

Example:  $6 \times 4 = 24$       So  $60 \times 4 = 240$   
 So  $240 \div 4 = 60$

Example:  $9 \times 8 = 72$       So  $18 \times 8 = 144$   
 So  $144 \div 8 = 18$

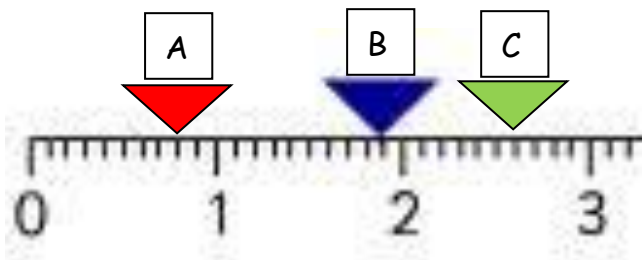
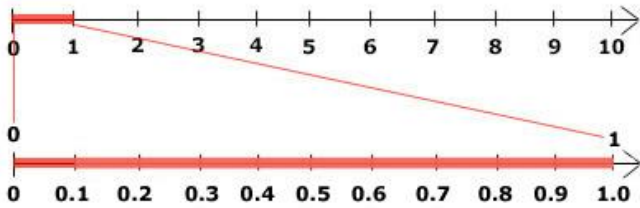
### 3/13 Tenths

tens	ones		tenths
8	2	•	6

- This represents 6 tenths =  $\frac{6}{10}$

### Counting in tenths (continued)

- A whole one divided into 10 equal parts
- $1 \div 10 = 1$  tenth or  $\frac{1}{10}$  Or 0.1



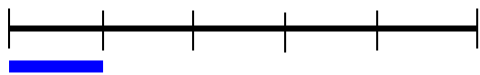
A - 0.8  
B - 1.9  
C - 2.6

- To find a tenth of an object or quantity you divide by 10

Example:  $\frac{1}{10}$  of 20 =  $20 \div 10 = 2$

### 3/14 Fraction of line or objects

- To find  $\frac{1}{5}$  of a line
- Divide the line into 5 equal parts



Each part is  $\frac{1}{5}$

- To find  $\frac{1}{5}$  of a set of objects
- Divide objects into 5 equal parts



Each part is  $\frac{1}{5}$

### 3/16 Equivalent fractions

### 3/14 Write a fraction of a number of object



$\frac{2}{5}$  are blue and  $\frac{3}{5}$  are red

### 3/15 Use fractions as numbers

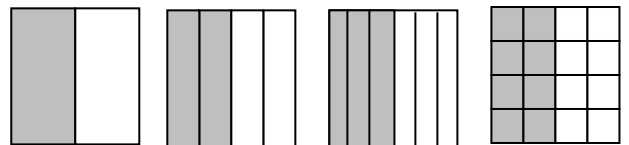
To find  $\frac{1}{5}$  of 20 we do  $20 \div 5 = 4$

To find  $\frac{2}{5}$  of 20 we do  $4 \times 2 = 8$

To find  $\frac{3}{5}$  of 20 we do  $4 \times 3 = 12$

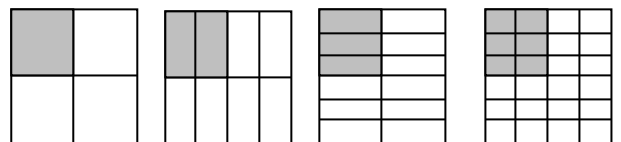
- The same fraction can be expressed in different ways

ALL THESE ARE  $\frac{1}{2}$



$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{8}{16}$$

ALL THESE ARE  $\frac{1}{4}$



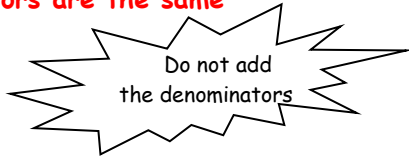
$$\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{6}{24}$$

### 3/17 Add & subtract fractions

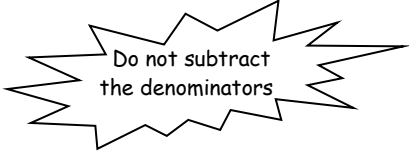
- To add and subtract fractions

**When the denominators are the same**

$$\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$$



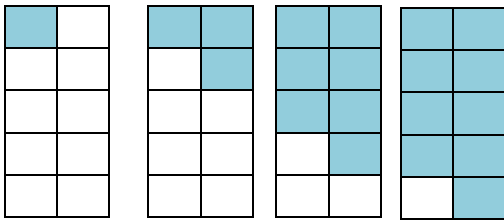
$$\frac{5}{7} - \frac{1}{7} = \frac{4}{7}$$



### 3/18 Compare fractions

- Fractions with the same denominator**

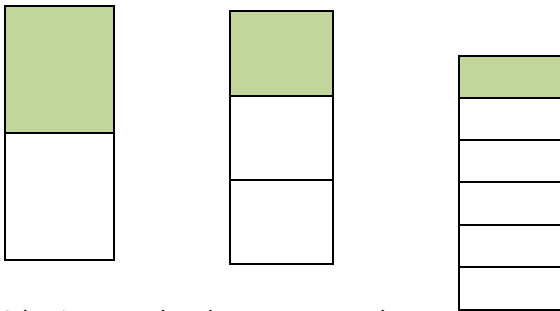
$$\frac{1}{10} \quad \frac{3}{10} \quad \frac{7}{10} \quad \frac{9}{10}$$



The bigger the numerator, the bigger the fraction

- Unit Fractions**

$$\frac{1}{2} \quad \frac{1}{3} \quad \frac{1}{6}$$

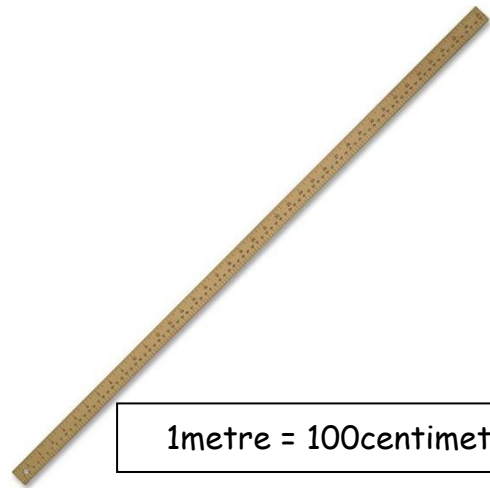


The bigger the denominator, the smaller the fraction

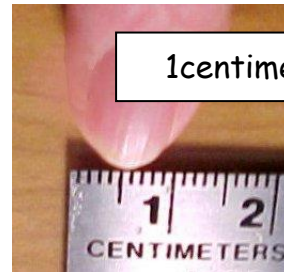
### 3/19 Add & subtract measures

- The units must be the same**

Length - Example

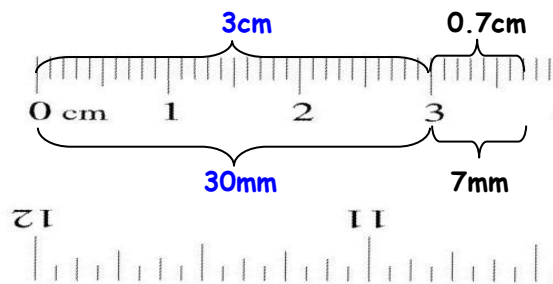


1 metre = 100 centimetres

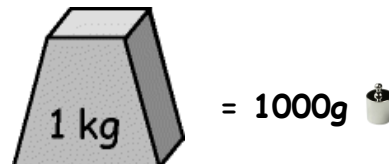


1 centimetre = 10 millimetres

$$\begin{aligned} & 3\text{cm} + 7\text{mm} \\ &= 30\text{mm} + 7\text{mm} \\ &= 37\text{mm} \\ &\text{or } 3\text{cm } 7\text{mm or } 3.7\text{cm} \end{aligned}$$



Mass - Example



$$\begin{aligned} & 3\text{kg} - 450\text{g} \\ &= 3000\text{g} - 450\text{g} \\ &= 2550\text{g} \\ &\text{or } 2\text{kg } 550\text{g or } 2.55\text{kg} \end{aligned}$$

### 3/19 Add & subtract measures (continued)

#### Volume - Example



1 litre = 1000 millilitres

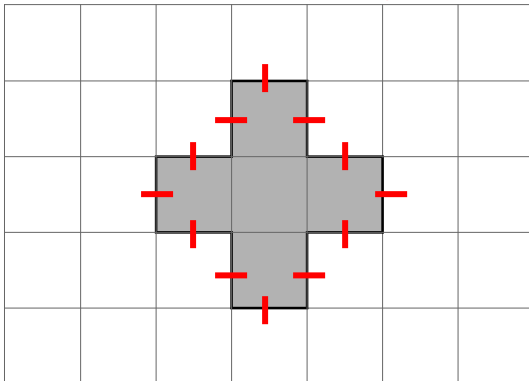


$$\begin{aligned} & 800\text{ml} + 720\text{ml} \\ & = 1520\text{ml} \\ & = 1 \text{ litre and } 520\text{ml} \\ & = 1.52 \text{ litres} \end{aligned}$$

### 3/20 Perimeter

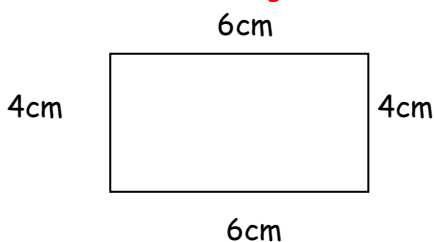
PERIMETER is the distance round the outside of a shape

- On a centimetre square grid - count round



Perimeter of this shape = 12cm

- Measurements given - add up all round



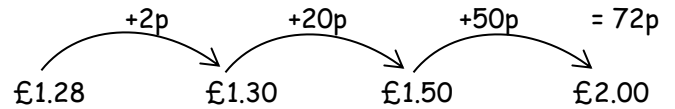
Perimeter of this shape =  $6 + 4 + 6 + 4 = 20\text{cm}$

### 3/21 Bills and change

To work out a bill

- 1 chocolate bar - £1.10
- 1 pen - 10p
- 1 pencil - 8p
- Total = £1.28

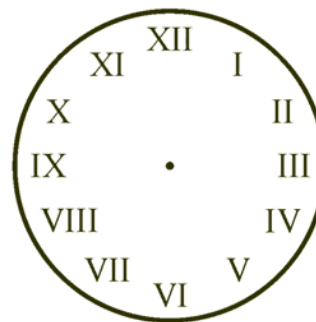
To find change by the 'add-on' method



### 3/22 Time

#### Analogue clock

Roman

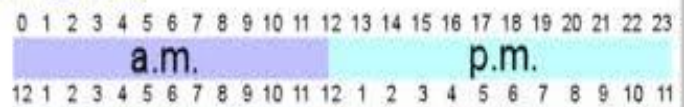


Hindu-Arabic



#### 12- and 24-hour clock

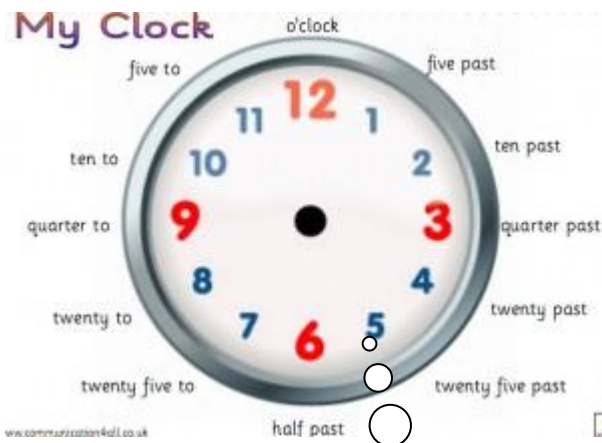
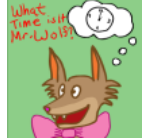
##### 24-hour time



##### 12-hour time

### 3/23 Time

#### Reading the time

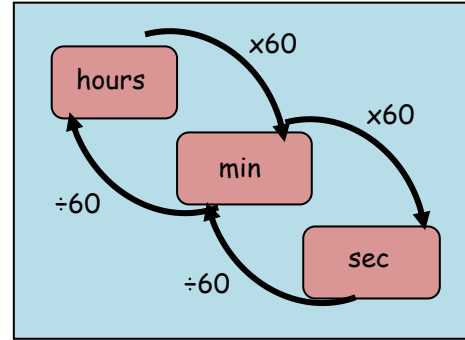


5 minutes between each number- so this time is 1:27 or we say 27 minutes

#### Times of the day in 12-hour clock

Morning	Afternoon
12.00 midnight	12.00 noon
1.00 am	1.00 pm
2.00 am	2.00 pm
3.00 am	3.00 pm
4.00 am	4.00 pm
5.00 am	5.00 pm
6.00 am	6.00 pm
7.00 am	7.00 pm
8.00 am	8.00 pm
9.00 am	9.00 pm
10.00 am	10.00 pm
11.00 am	11.00 pm
12.00 noon	12.00 midnight

### 3/24 Time - hours, minutes, seconds



### Months of the year



- A rhyme to remember the days in each month

30 days has September,  
April, June and November.  
All the rest have 31  
Except February alone,  
Which has 28 days clear  
And 29 in each leap year.

- the "knuckle method"



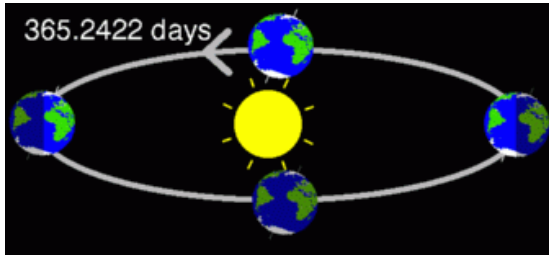
A knuckle is "31 days", and in between each knuckle it isn't. And where your hands meet, the two knuckles are "July, August", which both have 31 days.

February has 28 days & 29 days in a leap year (every 4 years)



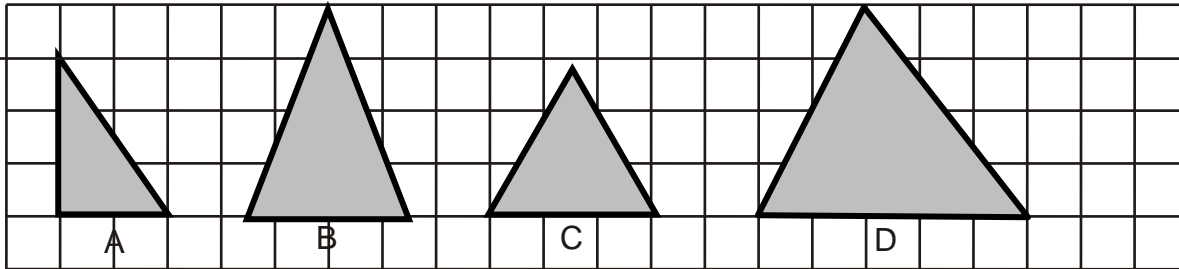
Days in a year

365 days in a year  
366 days in a leap year



3/25 - 2D Shapes

- With 3 sides (Triangles)



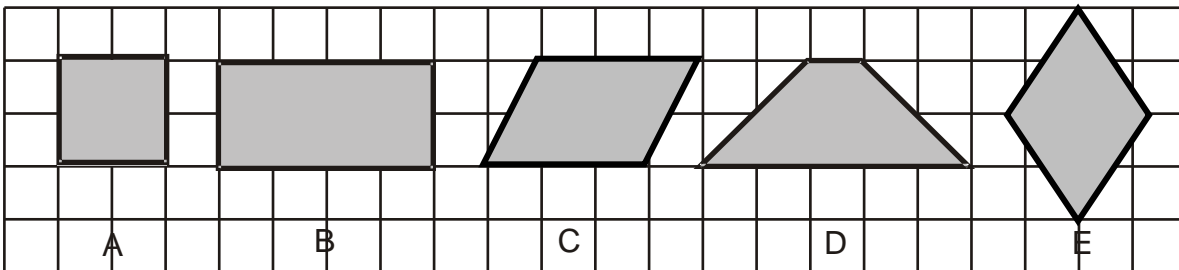
right-angled

isosceles

equilateral

scalene

- With 4 sides (Quadrilaterals)



square

rectangle

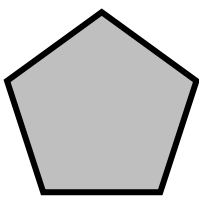
parallelogram

trapezium

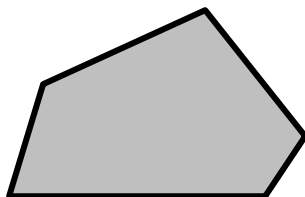
rhombus

- With 5 sides (Pentagons)

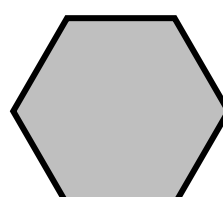
- With 6 sides (Hexagons)



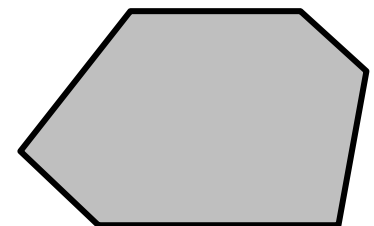
regular



irregular

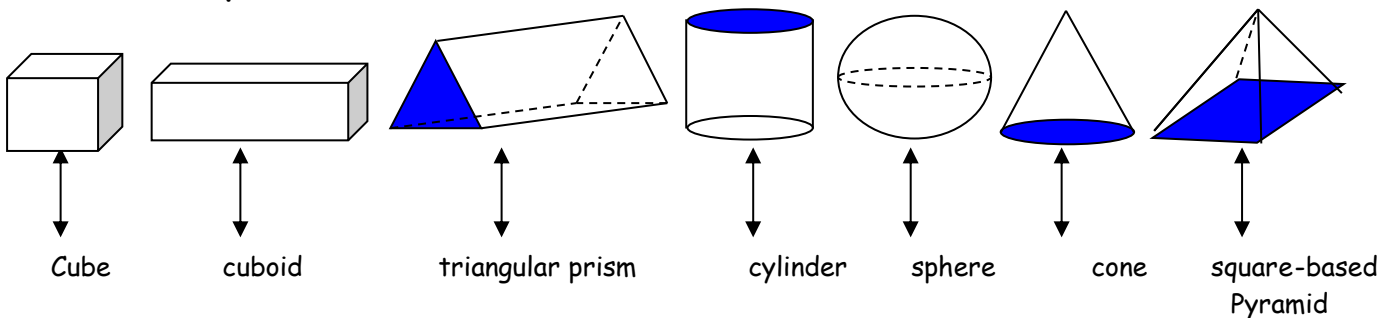


regular



irregular

3/25 - 3D Shapes



Cube

cuboid

triangular prism

cylinder

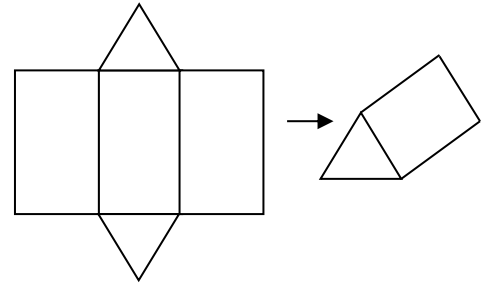
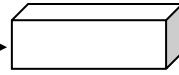
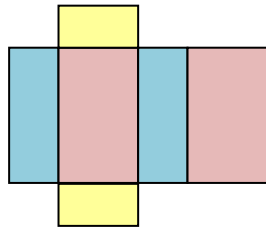
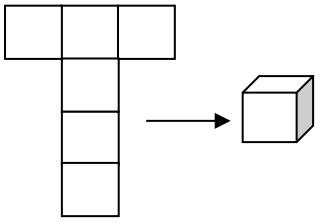
sphere

cone

square-based  
Pyramid

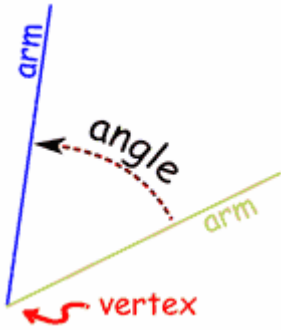


- **Nets**



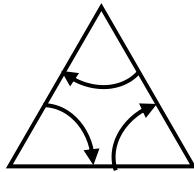
**3/26 Angle**

- An angle is an amount of turn

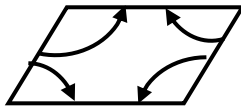


- Angles in shapes

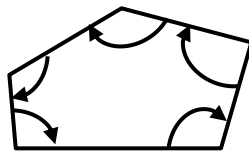
**Triangle - 3 angles**



**Quadrilateral - 4 angles**

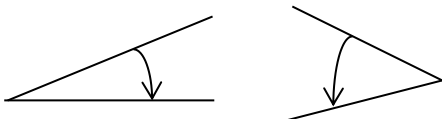


**Pentagon - 5 angles**

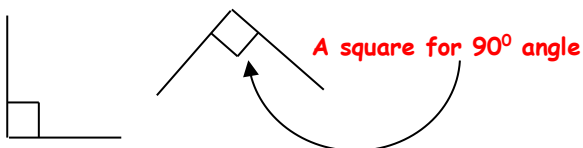


- Names of angles

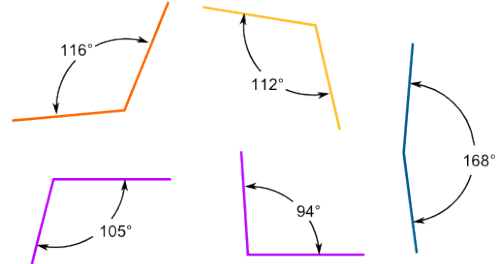
**ACUTE** angles are less than  $90^\circ$



**RIGHT** angles are exactly  $90^\circ$

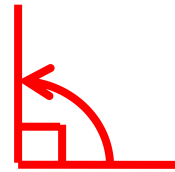


**OBTUSE** angles are bigger than  $90^\circ$



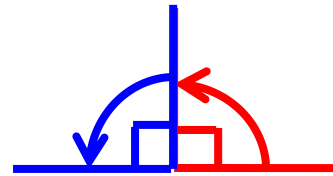
**3/27 Right angles**

ONE right angle measures exactly  $90^\circ$



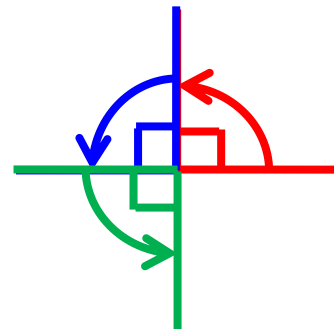
TWO right angles measure exactly  $180^\circ$

This is called a half-turn



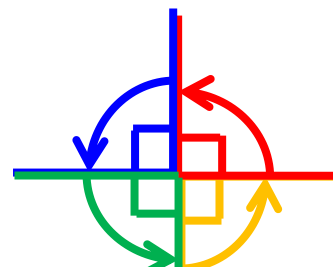
THREE right angles measure exactly  $270^\circ$

This is called three quarters of a turn

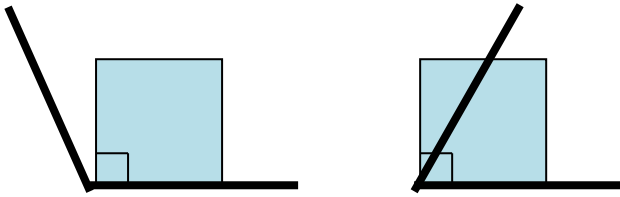


FOUR right angles measure exactly  $360^\circ$

This is called a full or complete turn



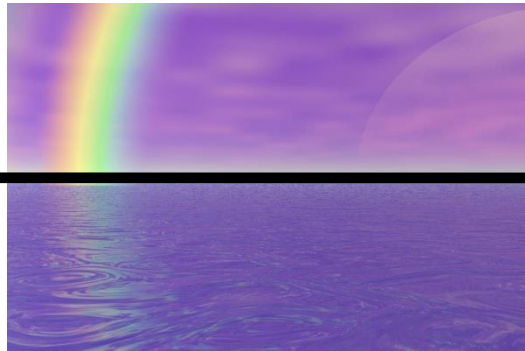
To check if an angle is bigger or smaller than a right angle, use a square corner



This angle is greater than a right angle

3/28 Types of Lines

This angle is less than a right angle



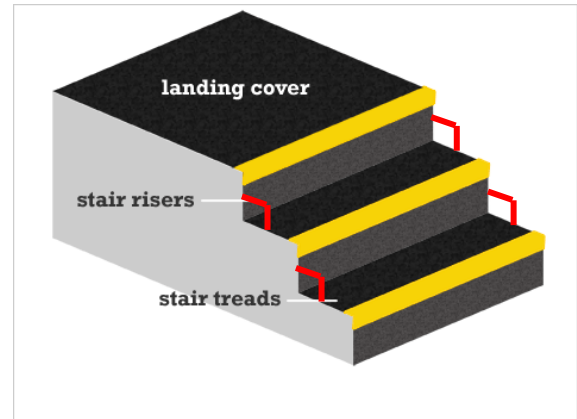
The Horizon is a horizontal line



This cliff face is a vertical line



The running track is parallel lines (never meet)



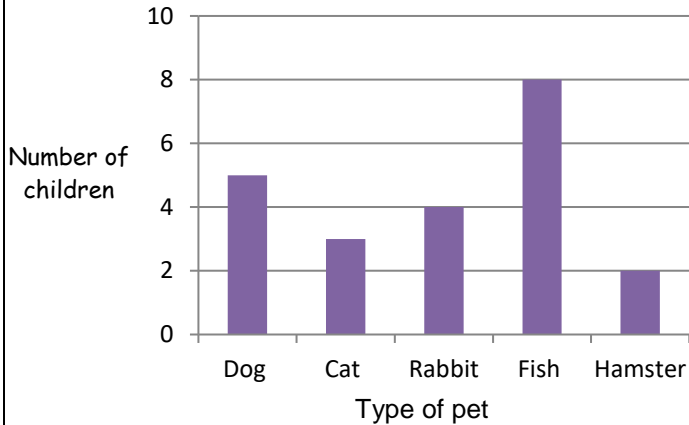
The rise & tread are perpendicular lines (meet at  $90^\circ$ )

### 3/29 Bar charts

Frequency table to show pets owned by Year 3

Type of pet	Tally	Number of pets
Dog		5
Cat		3
Rabbit		4
Fish		8
Hamster		2

A bar graph to show pets owned by Year 3



Pictogram to show the colours in a tube of Smarties

Colour	Number of Smarties
Green	4 (3 full circles, 1 half circle)
Orange	4 (4 full circles)
Blue	3 (2 full circles, 1 half circle)
Pink	3 (3 full circles)
Yellow	6 (5 full circles, 1 half circle)
Red	4 (4 full circles)
Purple	4 (3 full circles, 1 half circle)
Brown	2 (1 full circle, 1 half circle)
	Key: ● = 2 smarties

### 3/30 Solve answers to questions

#### • Bar chart in 3/29

- (i) How many **more** children own a rabbit than a hamster?  
 Answer:  $4 - 2 = 2$
- (ii) What is the **difference** between the number of children who own a dog and the number of children who own a cat?  
 Answer:  $5 - 3 = 2$
- (iii) How many pets are owned **altogether** by the children Year 3?  
 Answer:  $5 + 3 + 4 + 8 + 2 = 22$

#### • Pictogram in 3/29

- (i) How many **fewer** blue smarties are there than yellow ones?  
 Answer:  $11 - 5 = 6$
- (ii) Work out the **total** number of smarties in the tube  
 Answer: 55