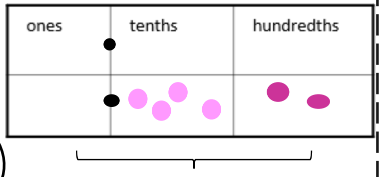
Knowledge Organiser	Subject	Year	Term	KO n.o.	Title
	Mathematics	8	1	1A	Ch 1 Whole Number and Decimals

Decimals



We say "nought point five two"

Five tenths and two hundredths

0 ones, 5 tenth and 2 hundredths
0 + 0.1 + 0.1 + 0.1 + 0.1 + 0.1 + 0.01 + 0.01
= 0 + 0.5 + 0.02
= **0.52**

Decimal intervals on a number line

One whole spit into 10 parts makes tenths = 0.1
One tenth split into 10 parts makes hundredths = 0.01

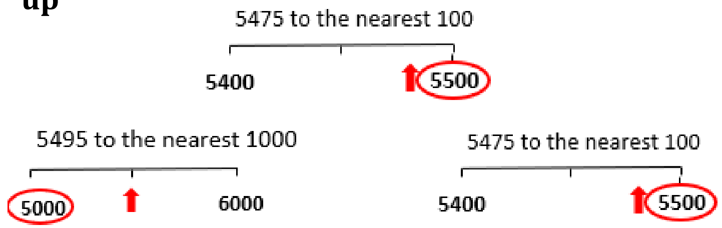
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1

0 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.1

0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8

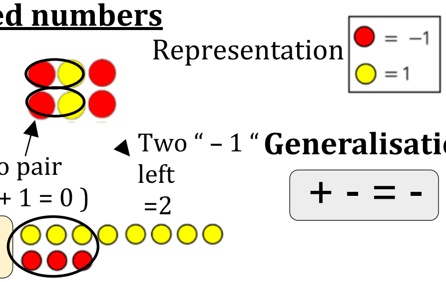
Rounding to the nearest power of ten

If the number is halfway between we "**round up**"



Add directed numbers

Representation



2 + - 4 = -2

Zero pair (-1 + 1 = 0)

Two " – 1 " left =2

Generalisation

+ - = -

8 + -3 = 5

Partitioning

8 + -3 = 5

5 + 3 + - 3 = 5

Partition the value to create a zero pair calculation

Subtract directed numbers

"Subtract" – means take away or <u>remove</u>

2 - - 1 =   2 - -1 = 2 + 1 = 3

2 - - 3 =   2 - -3 = 2 + 3 = 5

- - = +

Multiples

The "times table" of a given number

All the numbers in this list below are multiples of 3.

3, 6, 9, 12, 15…

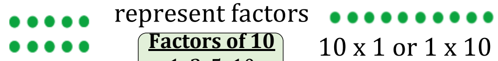
$3x$. $6x$. $9x$ …

This list continues and doesn't end

x could take any value and as the variable is a multiple of 3 the answer will also be a multiple of 3

Factors

Arrays can help represent factors



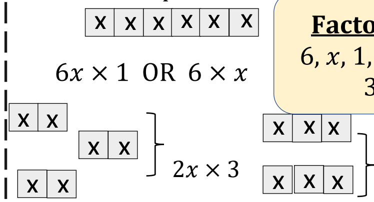
5 x 2 or 2 x 5

Factors of 10
1, 2, 5, 10

10 x 1 or 1 x 10

The number itself is always a factor

Factors and expressions



$6x \times 1$ OR $6 \times x$

$2x \times 3$

$3x \times 2$

Factors of $6x$
$6, x, 1, 6x, 2x, 3, 3x, 2$

Rounding Decimals

Rounding decimals places is exactly like rounding whole numbers – you just have more numbers (and therefore greater accuracy.

3.248

3 is the units digit.

2 is worth 2 <u>tenths</u>, and is the first decimal place.

4 is worth 4 <u>hundredths</u>, and is the second decimal place.

8 is worth 8 <u>thousandths</u>, and is the third decimal place.

<u>3.248 rounded to 1 d.p.</u>

3.248   3.2|48 → 3.2

1st dp 3.2

Look at the next digit. 4 stays down - stay at 3.2.

<u>3248 rounded to 2 d.p.</u>

3.248   3.24|8 → 3.25

2nd dp 3.24

Look at the next digit. 8 rounds up - go to 3.25

Prime numbers

- Integer
- Only has 2 factors
- 1 and itself

2

The first prime number
The only even prime number

Learn or how-to quick recall…

2, 3, 5, 7 , 11, 13, 17, 19, 23,

Subject	Year	Term	KO n.o.	Title
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Comparing decimals

Ones	Tenths	Hundredths
	0.1 0.1 0.1	
Ones	**Tenths**	**Hundredths**
	0.1 0.1	0.01 0.01 0.01

0.30

0.23

0.3 > 0.23

“There are more counters in the furthest column to the left”

Comparing the values both with the same number of decimal places is another way to compare the number of tenths and hundredths

Square and Triangular numbers

Representations are useful to understand a square number n^2

1, 4, 9, 16, 25, 36, …

Representations are useful – an extra counter is added to each new row. Add two consecutive triangular numbers and get a square number

1, 3, 6, 10, 15, 21, 36,…..

Common factors and HCF

Common factors are factors two or more numbers share

1 is a common factor of all

HCF – Highest common factor

HCF of 18 and 30

18 1, 2, 3, 6, 9, 18

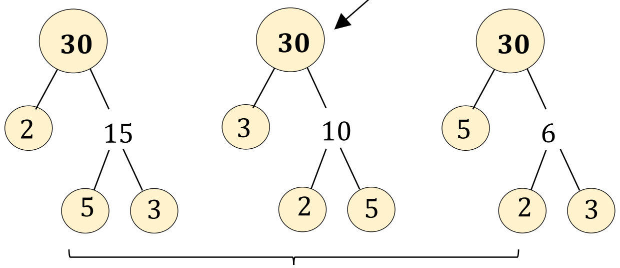
30 1. 2. 3. 5. 6. 10. 15.

Common factors (factors of both numbers)
1, 2, 3, 6

HCF = 6

Product of prime factors

Multiplication part-whole



All three prime factor trees represent the same decomposition

30 = 2 x 3 x 5

Multiplication of prime factors

Using prime factors for predictions

e.g. **60** 30 x 2 2 x 3 x 5 **x**

150 30 x 5 2 x 3 x 5

LCM – Lowest common multiple

LCM of 9 and 12

9 9. 18. 27. 36. 45.

12 12. 24. 36. 48.

LCM = 36

The first time their multiples match

Multiples

The “times table” of a given number

All the numbers in this list below are multiples of 3.

3, 6, 9, 12, 15…

This list continues and doesn’t end

$3x, 6x, 9x$ …

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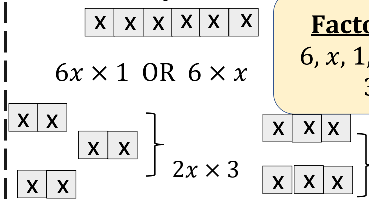
Factors and expressions

Factors of $6x$
$6, x, 1, 6x, 2x, 3, 3x, 2$



$6x \times 1$ OR $6 \times x$

$2x \times 3$

$3x \times 2$

Divisibility Tests For 2, 3, 5, 7 And 11

This shows you the divisibility tests for 2, 3, 5, 7, and 11, so you can tell if those numbers are factors of a given number or not without dividing.

- Divisibility Test for 2: The last digit is 0, 2, 4, 6, or 8.
- Divisibility Test for 3: The sum of the digits is divisible by 3.
- Divisibility Test for 5: The last digit is 0 or 5.
- Divisibility Test for 7: Cross off last digit, double it and subtract. Repeat if you want. If new number is divisible by 7, the original number is divisible by 7.
- Divisibility Test for 11: For a 3-digit number, sum of the outside digits minus the middle digit must be 0 or 11.

Prime numbers

2

- Integer
- Only has 2 factors
- 1 and itself

The first prime number
The only even prime number

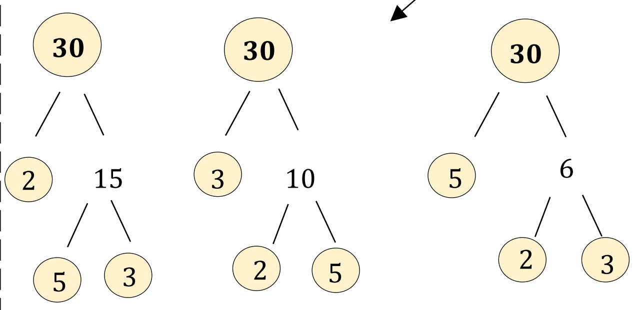
Learn or how-to quick recall…

2, 3, 5, 7 , 11, 13, 17, 19, 23,

Knowledge Organiser	Subject	Year	Term	KO n.o.	Title
	Mathematics	8	1	1C	Ch 1 Whole Number and Decimals

Product of prime factors

Multiplication part-whole



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30	1. 2. 3. 5. 6. 10. 15.

Common factors (factors of both numbers)
1, 2, 3, 6

HCF = 6

LCM – Lowest common multiple

LCM of 9 and 12

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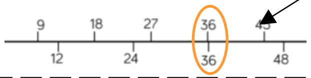
12	12. 24. 36. 48.

LCM = 36

The first time their multiples match



Multiples

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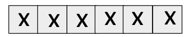
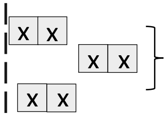
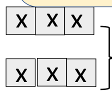


$6x \times 1$ OR $6 \times x$



$2x \times 3$



$3x \times 2$

Factors of $6x$
$6, x, 1, 6x, 2x, 3, 3x, 2$

Round to powers of 10 and 1 sig. figure

Round to the first non-zero number

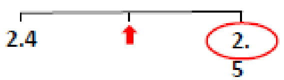
370 to 1 significant figure is 400
37 to 1 significant figure is 40
3.7 to 1 significant figure is 4
0.37 to 1 significant figure is 0.4
0.00037 to 1 significant figure is 0.0004

Round to decimal places

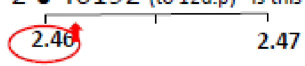
"To 1.d.p" –to one number after the decimal.
"To 2.d.p" –to two numbers after the decimal

Focus on the numbers **after** the decimal point

2 • 46192 (to 1.d.p) - Is this closer to 2.4 or 2.5



2 • 46192 (to 12d.p) - Is this closer to



This shows the number is closer to 2.46

Prime numbers

2

- Integer
- Only has 2 factors
- 1 and itself

The first prime number
The only even prime number

Learn or how-to quick recall...

2, 3, 5, 7 , 11, 13, 17, 19, 23,

Indices

$2 \times 2 \times 2 = 2^3$
The small number is called the **index** or **power**.
The big number is called the **base.**

$15^4 = 15 \times 15 \times 15 \times 15 = 50625$

Addition law for indices
$a^m \times a^n = a^{m+n}$

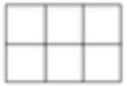
eg $3^5 \times 3^3 = 3^8$

Subtraction law for indices
$a^m \div a^n = a^{m-n}$

eg $3^5 \div 3^3 = 3^2$

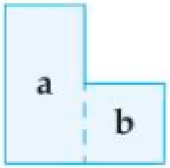
Knowledge Organiser	Subject	Year	Term	KO n.o.	Title
	Mathematics	8	1	2A	Ch 2 Measure. Perimeter and Area

Area of composite shapes

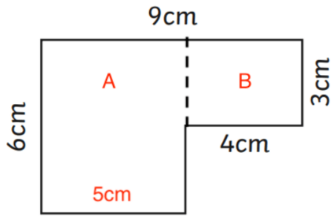


Area = base x height

Composite shapes mean it is made up from 2 or more shapes.



Total area = **a** + **b**



6x5 = 30

3x4=12

Total area = 30 + 12 = 42cm^2

Converting between different Metric units

Length	
1 cm	= 10 mm
1 m	= 100 cm
1 km	= 1000 m

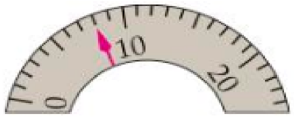
Area	
1 cm²	= 100 mm²
1 m²	= 10 000 cm²
1 ha	= 10 000 m²
1 km²	= 1 000 000 m²

Capacity and Volume	
1 cl	= 10 ml
1 litre	= 100 cl
1 litre	= 1000 ml
1 litre	= 1000 cm³
1 ml	= 1 cm³

Time	
1 minute	= 60 seconds
1 hour	= 60 minutes
1 day	= 24 hours
1 week	= 7 days
1 year	= 365 days

Mass	
1 kg	= 1000 g
1 tonne	= 1000 kg

Reading Scales



This scale shows 8 units

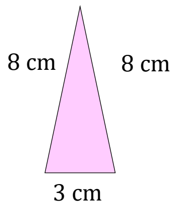
Area and Perimeter

The area of this rectangle is 5 x 15 = 75 **mm²**.

The perimeter of this rectangle id 5 + 15 + 5 + 15 = 40 **mm**

Solve problems with perimeter

Perimeter is the length around the outside of a polygon

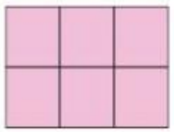


The triangle has a perimeter of

8cm + 8cm + 3cm = 19cm

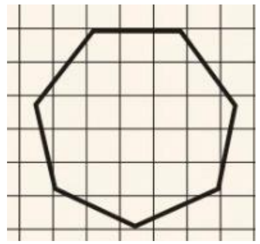
Area

Area is the space inside a 2D shape



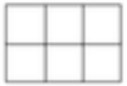
This shape is made of 6 squares.
Each square is 1 cm wide.
Its area is 6 cm².

Estimating the area of a 50p coin, it is about 21 whole squares and 9 part squares which will be about 5 more whole square. 21 + 5 = 26 squares.



Knowledge Organiser	Subject	Year	Term	KO n.o.	Title
	Mathematics	8	1	2B	Ch 2 Measure. Perimeter and Area

Area of composite shapes



Area = base x height

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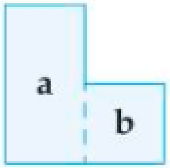
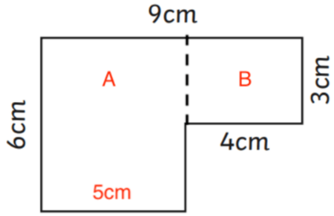


Total area = **a** + **b**



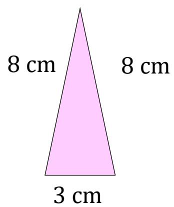
6x5 = 30

3x4=12

Total area = 30 + 12 = $42cm^2$

Solve problems with perimeter

Perimeter is the length around the outside of a polygon



The triangle has a perimeter of

8cm + 8cm + 3cm = 19cm

Converting between different Metric units

Length	
1 cm	= 10 mm
1 m	= 100 cm
1 km	= 1000 m

Area	
1 cm^2	= 100 mm^2
1 m^2	= 10 000 cm^2
1 ha	= 10 000 m^2
1 km^2	= 1 000 000 m^2

Capacity and Volume	
1 cl	= 10 ml
1 litre	= 100 cl
1 litre	= 1000 ml
1 litre	= 1000 cm^3
1 ml	= 1 cm^3

Time	
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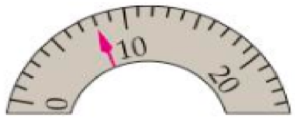

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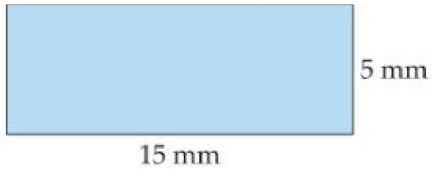
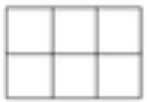
Area and Perimeter



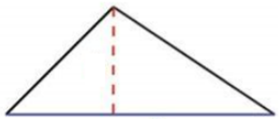
The area of this rectangle is 5 x 15 = 75 $\mathbf{mm^2}$.

The perimeter of this rectangle id 5 + 15 + 5 + 15 = 40 **mm**

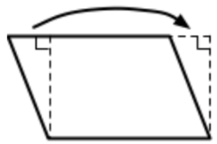
Area of Rectangles, Triangles, Parallelograms and Trapeziums



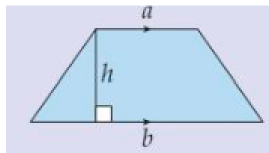
Area = base x height



Area = ½ x base x height



Area = base x perpendicular height



Area of a trapezium

= ½ (a +b) x h

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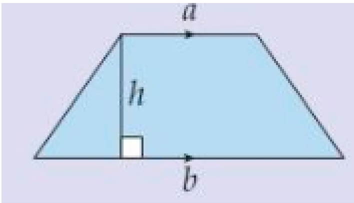
Mathematics	8	1	2C	Ch 2 Measure. Perimeter and Area

Area of trapeziums



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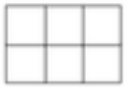
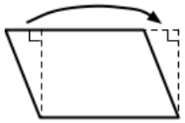
Area of Rectangles, Triangles and Parallelograms



Area = base x height



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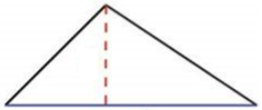

Area = ½ x base x height

Circle Formulae

Diameter = 2r

Circumference = π x diameter

Or = 2 x π x r

Area of a circle = πr^2

Π = 3.141592……….

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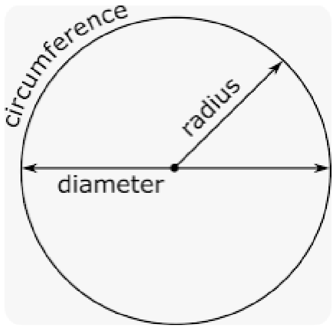
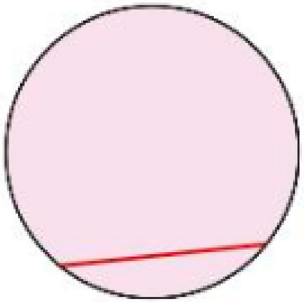
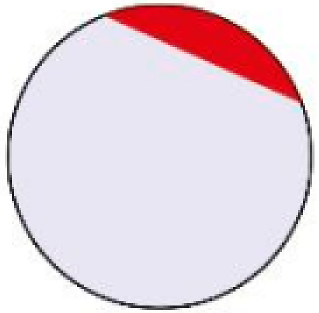
Circle parts



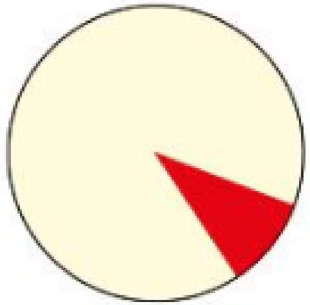
Circumference is the distance around the outside of the shape. The **Diameter** is across the circle through the Centre. The **Radius** is from the centre to the edge.



The **Chord** is a line joining two points on the circumference.



A **segment** is the region enclosed between a chord and an arc.



A **sector** is the region enclosed by an arc and two **Radii**.

Knowledge Organiser	Subject	Year	Term	KO n.o.	Title
	Mathematics	8	1	3A	Ch 3 Expressions and Formulae

Using letters to represent Numbers

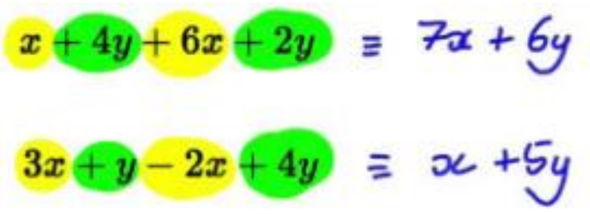
5 + 5 + 5 = 3 x 5

a + a + a = 3a

y + y + y +y = 4 x y = **4y**
(4 lots of y)

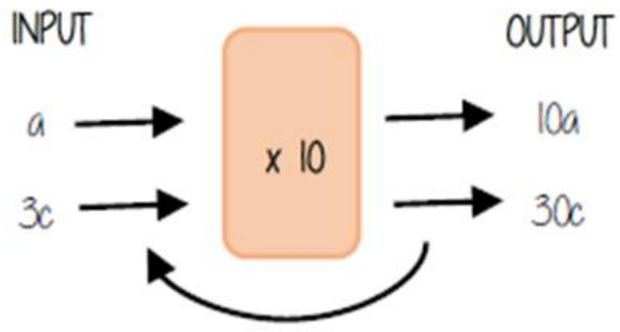
20 ÷ h = 20 shared in to h groups

Collecting Like terms



Terms must be exactly the same to be able to collect them. 2x and x are the same but 3x and x^2 are not the same.

Single Function Machines



To find the **input** from the **output inverse** the operation.

Writing a Formula

Spiders have eight legs.

Write a simple formulae to connect the number of spiders and the number of legs.

Lets use s for number of spiders and l for the number of legs.

Legs = 8 x the number of spiders

L = 8s

Check your answer……

2 spiders

L = 8 x 2 = 16 yes that's correct!

Substitution

Find the value of a) $2y^2$ and b) $y^3 + 2$ given that y = -3.

a) $2y^2$ = 2 x y x y = 2 x (-3) x (-3)
= **18**

b) y^3 + 2 = (y x y x y) + 2
= (-3) x (-3) x (-3) + 2

If y = 7 then 4y = 4 x7 = 28

If y = -7 the 4y = 4 x -7 = -28

Minus signs are important!

Expanding Brackets

Expand the brackets of these expressions

a) 3(x + 5)

3 x (x + 5) = 3 x X + 3 x 5 = 3x + 15

	x	+ 5
3	3x	+15

b) 10(y – 2)

10 x (y – 2) = 10 x y + (10 x -2) = 10y – 20

	x	-2
10	10x	-20

Knowledge Organiser	Subject	Year	Term	KO n.o.	Title
	Mathematics	8	1	3B	Ch 3 Expressions and Formulae

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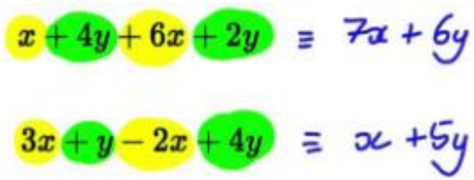

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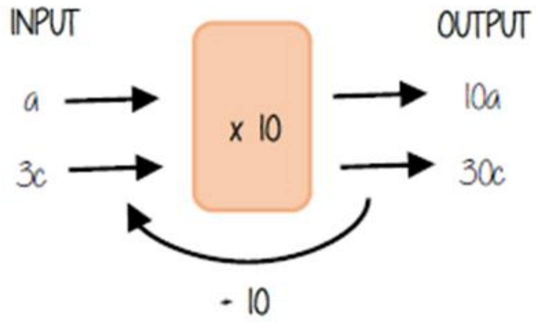
= -27 + 2 = **-25**

Single Function Machines



To find the **input** from the **output inverse** the operation.

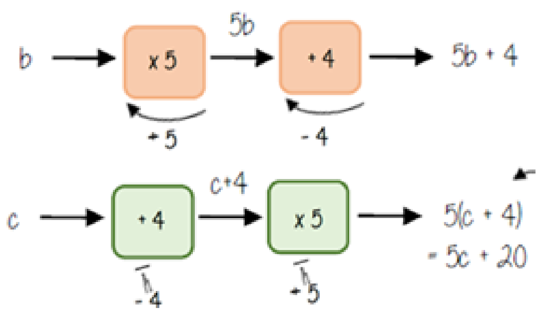
Writing a Formula

Ellie uses 3 eggs per fry up breakfast.

a) Use words to write a formla for how many eggs she uses in a day.
b) 5 people order fry ups. How many eggs does she use?
c) Use symbols to write the formula in a shorter way.

a) Number of fry ups x 3 eggs = total number of eggs.
b) The formula gives 5 x 3 = 15 so 15 eggs
c) f x 3 = e so e = 3f

Two step function Machines



Important – Calculate the value at the end of each operation.

Note the whole first output is multiplied by 5

Expanding Brackets

Expand the brackets of these expressions

a) 3(x + 5)

3 x (x + 5) = 3 x X + 3 x 5 = 3x + 15

	x	+ 5
3	3x	+15

b) 10(y – 2)

10 x (y – 2) = 10 x y + (10 x -2) = 10y – 20

	x	-2
10	10x	-20

Subject	Year	Term	KO n.o.	Title
Mathematics	8	1	3C	Ch 3 Expressions and Formulae

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Simplifying Algebraic Fractions

Simplify

a $\frac{6x}{9xy}$

b $\frac{4a^2b}{6ac}$

a $\frac{6x}{9xy} = \frac{\overset{2}{\cancel{6}} \times \cancel{x}}{{}_{3}\cancel{9} \times \cancel{x} \times y} = \frac{2}{3y}$

b $\frac{4a^2b}{6ac} = \frac{\overset{2}{\cancel{4}} \times \cancel{a} \times a \times b}{{}_{3}\cancel{6} \times \cancel{a} \times c} = \frac{2ab}{3c}$

Substitution

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a) $2y^2$ = 2 x y x y = 2 x (-3) x (-3)
= **18**

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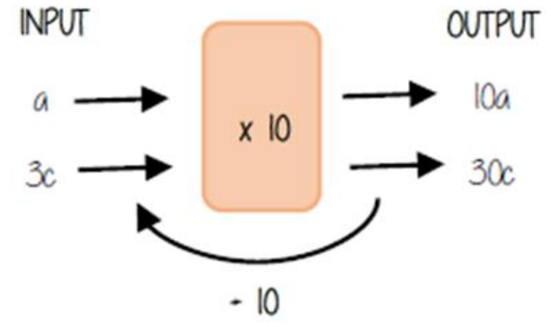
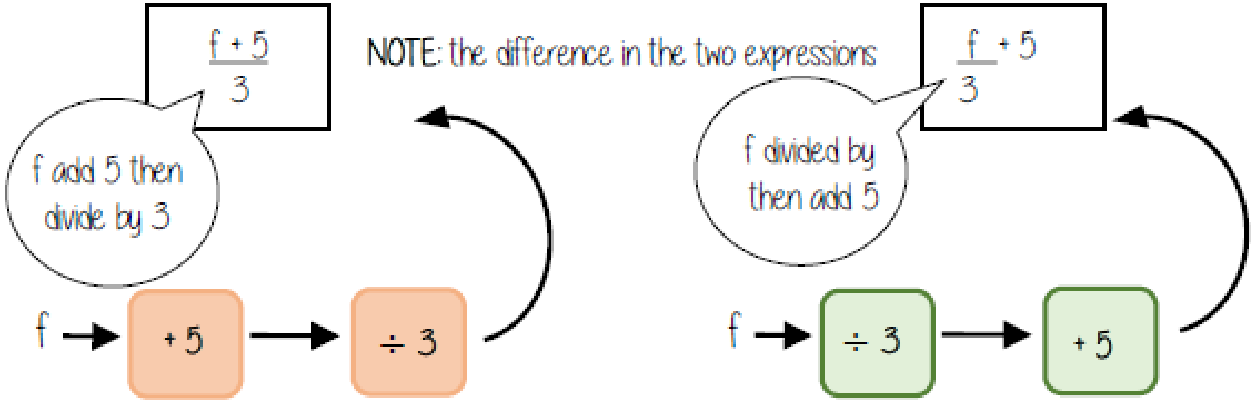
= (-3) x (-3) x (-3) + 2
= -27 + 2 = **-25**

Single Function Machines



To find the **input** from the **output inverse** the operation.

Finding Functions from Expressions



Sometimes it helps to try to explain the expression in words – and consider what has happened to the input

Simplifying Algebraic Expressions

Simplify

a $2t \times 3t^2$

a $2t \times 3t^2 = 2 \times t \times 3 \times t \times t$
$= 2 \times 3 \times t \times t \times t$
$= 6t^3$

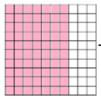
b $4ab \times 5b^2$

b $4ab \times 5b^2 = 4 \times a \times b \times 5 \times b \times b$
$= 4 \times 5 \times a \times b \times b \times b$
$= 20ab^3$

Knowledge Organiser	Subject	Year	Term	KO n.o.	Title
	Mathematics	8	1	4A	Ch 4 Fractions, Decimals and Percentages

Converting between FDP

$\frac{70}{100}$ → This also means 70 ÷ 100 → 70 out of 100 squares →



→ 70 hundredths = 70%

70 "hundredths" = 7 "tenths" 0.7

Converts to a decimal

× 100 converts to a percentage

Using a calculator

S⇌D

This will give you the answer in the simplest form

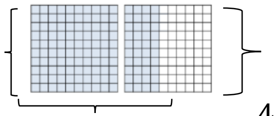
Be careful of recurring decimals

e.g $\frac{1}{3}$ = 0.3333333

= $0.\dot{3}$

The dot above the 3

Convert FDP < and > 100%



100 hundredths = 10 tenths **= 100%**

140 hundredths = 14 tenths **= 140%**

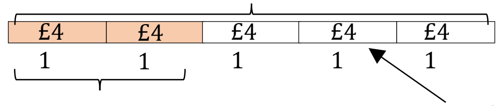
40 hundredths = 4 tenths **= 40%**

100% + 40% is 1 + 0.40 = 1.40

Fraction of an amount

Find $\frac{2}{5}$ of £205

£205



£205 ÷ 5 = £41

2 out of the 5 equal parts

2 x £41 = **£82**

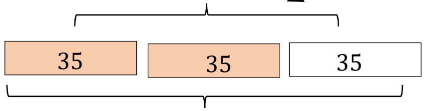
Each part of the bar model represents £41.

Use a fraction of amount

$\frac{2}{3}$ of a value is 70. What is the whole number?

70 ÷ 2 = 35

70



Each part of the bar model represents 35.

The whole number is 105 as 3 x 35 = 105

Add/Subtraction fractions

$$\frac{4}{9}+\frac{2}{9}=\frac{6}{9}=\frac{2}{3}$$

We add/subtract the numerators

Simplify the answer (if possible)

Denominators need to be the same before we can add/subtract fractions

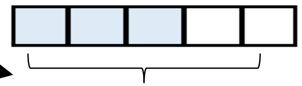
The denominator stays the same. We **never** add/subtract the denominator

Representing a fraction

Numerator
Denominator

$\frac{3}{5}$

Number of parts represented = **numerator**

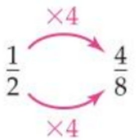


Number of parts to make up the whole = **Denominator**

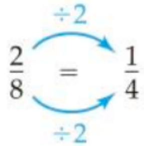
Equivalent fractions

Equivalent Fractions have the same value.

You can find equivalent fractions by.....



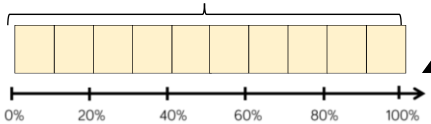
Multiplying top and bottom by the same number



Dividing top and bottom by the same number

Find the percentage of an amount

The **whole** represents 100%



10% = $\frac{1}{10}$ of the whole

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50% = $\frac{5}{10}$ = $\frac{1}{2}$ of the whole

20% = $\frac{2}{10}$ = $\frac{1}{5}$ of the whole

5% = $\frac{1}{20}$ of the whole

Find 65% of 80

65% = 10% x 6 + 5%
= (8 x 6) + 4 = **52**

Add/Subtraction any fractions

$\frac{4}{5} - \frac{2}{3}$ =

$\frac{12}{15}$ - $\frac{10}{15}$ = $\mathbf{\frac{2}{15}}$

Use **equivalent fractions** to find a **common multiple** for both denominators before you add/subtract the numerators

Fractions and decimals

You can use **inequalities** to compare numbers

> means "***is greater/bigger than***"

< means "***is less/smaller than***"

≥ means "***is greater than, or equal to***"

≤ means "***is less than, or equal to***"

$\frac{1}{2}$ = 0.5	$\frac{1}{5}$ = 0.2	$\frac{1}{10}$ = 0.1
$\frac{1}{4}$ = 0.25	$\frac{3}{4}$ = 0.75	$\frac{1}{8}$ = 0.125

Knowledge Organiser	Subject	Year	Term	KO n.o.	Title
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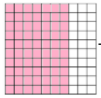
$\frac{70}{100}$ → This also means 70 ÷ 100 → 70 out of 100 squares →  → 70 hundredths = 70%

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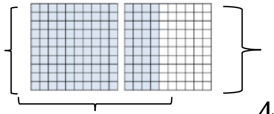

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Find $\frac{2}{5}$ of £205

£205

£4	£4	£4	£4	£4
1	1	1	1	1

£205 ÷ 5 = £41

2 out of the 5 equal parts

2 x £41 = **£82**

Each part of the bar model represents £41.

Use a fraction of amount

$\frac{2}{3}$ of a value is 70. What is the whole number?

70

70 ÷ 2 = 35

35	35	35

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Add/Subtraction fractions

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We add/subtract the numerators

Simplify the answer (if possible)

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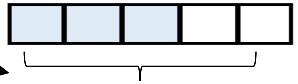

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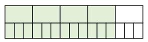
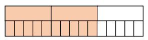
 - 

$\frac{12}{15}$ - $\frac{10}{15}$

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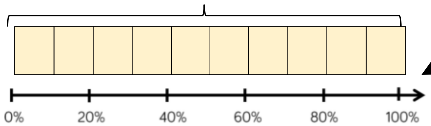

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Find 65% of 80

65% = 10% x 6 + 5%

= (8 x 6) + 4 = **52**

Find the percentage of an amount (Calculator methods)

Using a multiplier

Find 65% of 80

Fraction, decimal, percentage conversion

65% = $\frac{65}{100}$ = **0.65**

0.65 x 80 = **52**

The multiplier

Using the percent button

Type **65**

Press SHIFT ((%)

This brings up the % button on screen. You will see 65%

Press ⊠ 80 and then press =

You can also use the calculator to support non calculator methods and find 1% or 10% then add percentages together

Knowledge Organiser	Subject	Year	Term	KO n.o.	Title
	Mathematics	8	1	4C	Ch 4 Fractions, Decimals and Percentages

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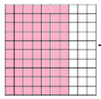

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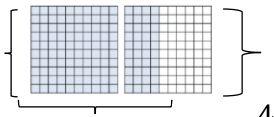

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70

70 ÷ 2 = 35

35	35	35

Each part of the bar model represents 35.

The whole number is 105 as 3 x 35 = 105

Multiplying and dividing fractions

$$\frac{3}{5} \times \frac{4}{7} = \frac{3 \times 4}{5 \times 7} = \frac{12}{35}$$

Multiply the numerators and denominators

$$\frac{2}{5} \div \frac{3}{7} = \frac{2}{5} \times \frac{7}{3} = \frac{14}{15}$$

Find the **reciprocal** of the second fraction and then multiply

REMEMBER: **KFC**

Keep first fraction,

Flip the second,

Change the divide to a multiply

Add/Subtraction any fractions

$$\frac{4}{5} - \frac{2}{3} =$$

$$\frac{12}{15} - \frac{10}{15}$$

$$= \frac{2}{15}$$

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The **whole** represents 100%

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0% 20% 40% 60% 80% 100%

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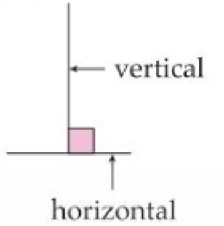
Knowledge Organiser	Subject	Year	Term	KO n.o.	Title
	Mathematics	8	1	5A	Ch 5 Angles and 2D shape

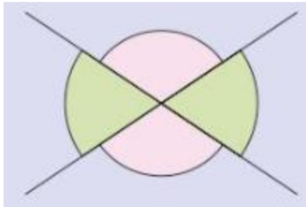
Angles and parallel lines

Parallel lines are always the same distance apart

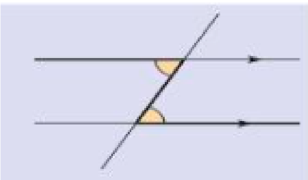
Perpendicular lines meet at right angles



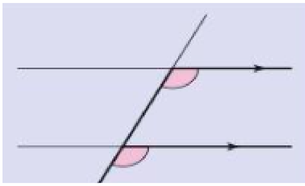
Vertically opposite angles **are equal**



Alternate Angles are equal

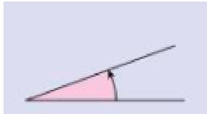


Corresponding angles are equal

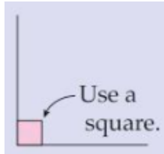


Angle Types

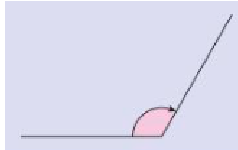
An **Acute** angle Is **smaller than 90º**



A **Right angle** is **exactly 90º**

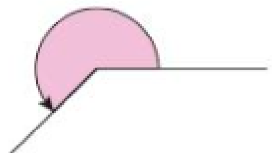


An **Obtuse Angle** is **between 90º and 180º**



Angles on a **straight line** is **exactly 180º**

Reflex angles are **more than 180º but less than 360º**

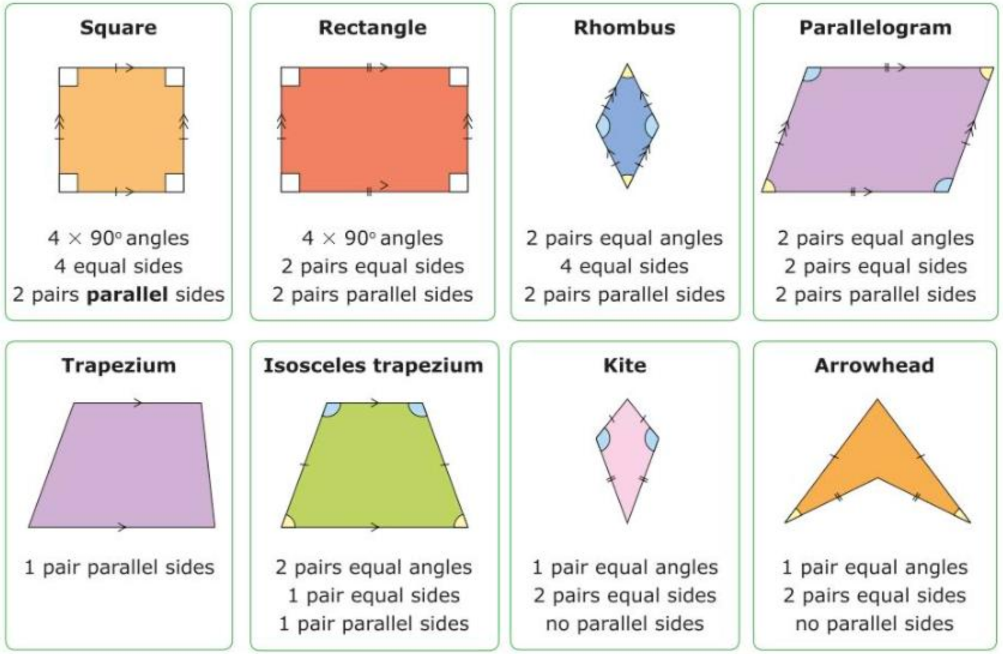


Notation:

ABC represents the angle from a to b to c.

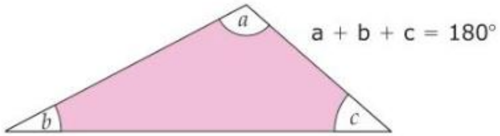
Line AB represents the line from a to B

2D Shapes

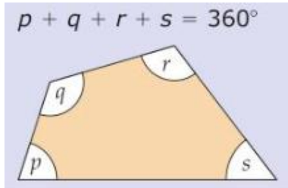


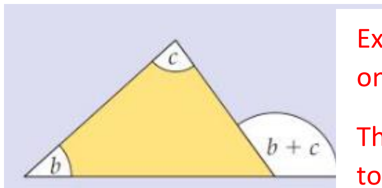
Angles in a triangle and quadrilateral

Angles in a **triangle** adds up to **180º**



Interior angles of a **quadrilateral** add up to **360º**





Exterior angles are found by extending one side at the corner.

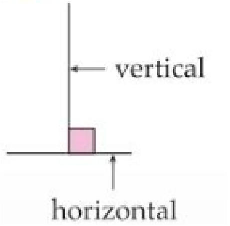
The exterior angle of a triangle adds up to the other 2 interior angles

Knowledge Organiser	Subject	Year	Term	KO n.o.	Title
	Mathematics	8	1	5B	Ch 5 Angles and 2D shape

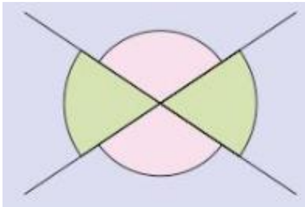
Angles and parallel lines

Parallel lines are always the same distance apart

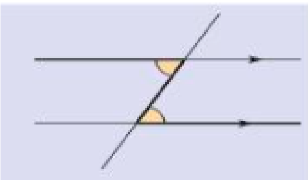
Perpendicular lines meet at right angles



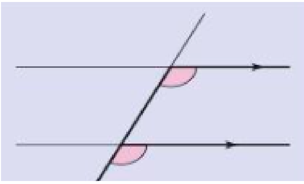
Vertically opposite angles **are equal**



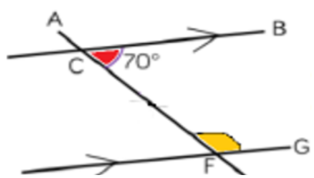
Alternate Angles are equal



Corresponding angles are equal

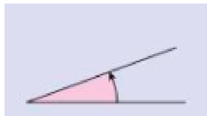


Co-interior angles add to 180º

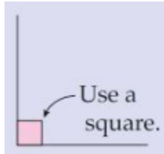


Angle Types

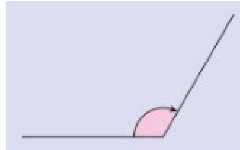
An **Acute** angle Is **smaller than 90º**



A **Right angle** is **exactly 90º**

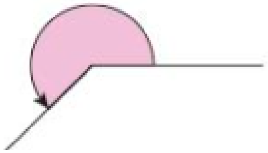


An **Obtuse Angle** is **between 90º and 180º**



Angles on a **straight line** is **exactly 180º**

Reflex angles are **more than 180º but less than 360º**



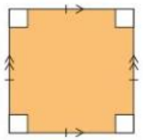
Notation:

ABC represents the angle from a to b to c.

Line AB represents the line from a to B

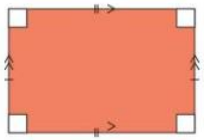
2D Shapes

Square



4 × 90º angles
4 equal sides
2 pairs **parallel** sides

Rectangle

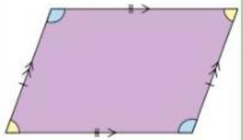


4 × 90º angles
2 pairs equal sides
2 pairs parallel sides

Rhombus

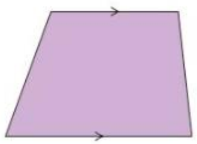
2 pairs equal angles
4 equal sides
2 pairs parallel sides

Parallelogram



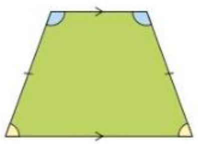
2 pairs equal angles
2 pairs equal sides
2 pairs parallel sides

Trapezium



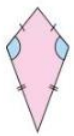
1 pair parallel sides

Isosceles trapezium



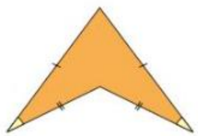
2 pairs equal angles
1 pair equal sides
1 pair parallel sides

Kite



1 pair equal angles
2 pairs equal sides
no parallel sides

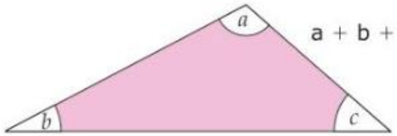
Arrowhead



1 pair equal angles
2 pairs equal sides
no parallel sides

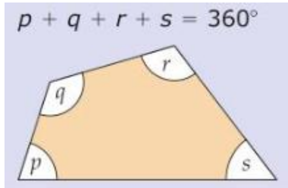
Angles in a triangle and quadrilateral

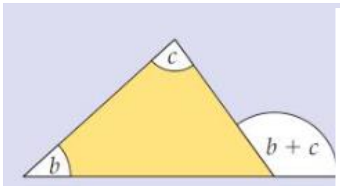
Angles in a **triangle** adds up to **180º**



$a + b + c = 180°$

Interior angles of a **quadrilateral** add up to **360º**





Exterior angles are found by extending one side at the corner.

The exterior angle of a triangle adds up to the other 2 interior angles

Knowledge Organiser	Subject	Year	Term	KO n.o.	Title
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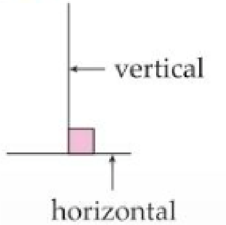

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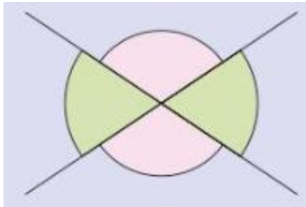

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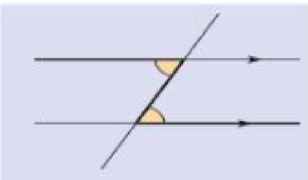
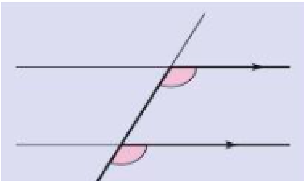


Corresponding angles are equal



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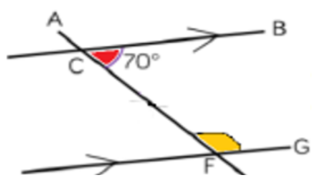
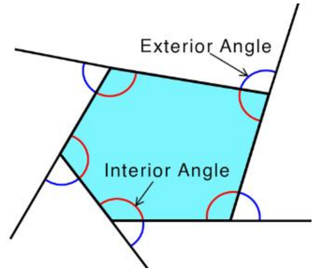


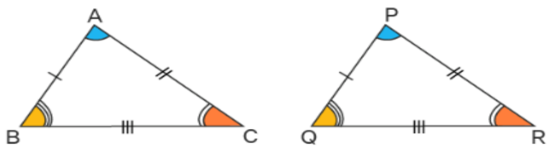
Interior and exterior angles

Interior angles + exterior angle = 180°
The exterior angles of any polygon add up to 360°
A regular shape has equal sides and angles

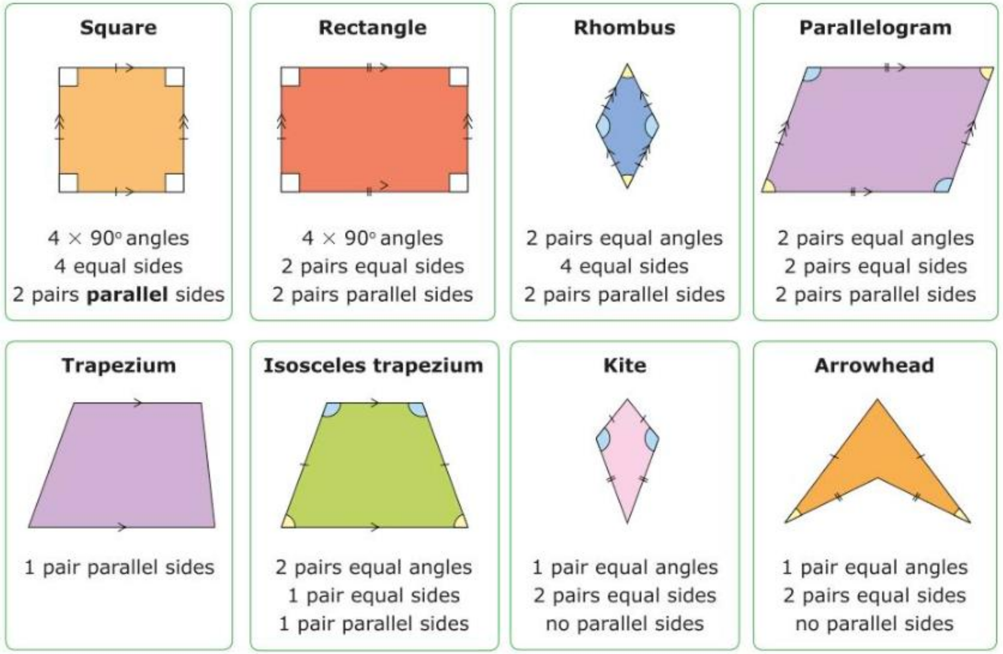


Congruent Shapes

Congruent shapes are identical in size and shape. They can be rotations or reflections of each other. Congruent shapes are identical with corresponding angles and sides the same size.

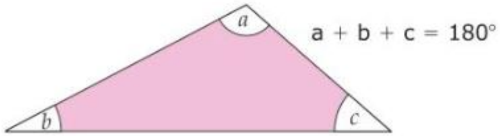


2D Shapes

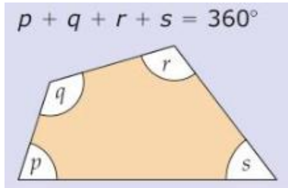


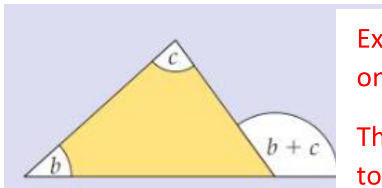
Angles in a triangle and quadrilateral

Angles in a **triangle** adds up to **180°**



Interior angles of a **quadrilateral** add up to **360°**





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The exterior angle of a triangle adds up to the other 2 interior angles