

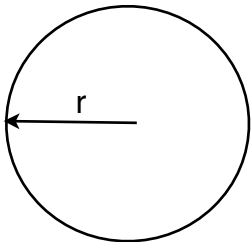


Southam
College

GCSE

Maths Revision Cards

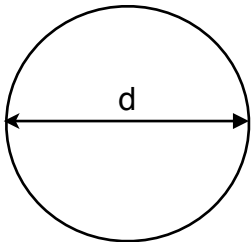
AREA OF A CIRCLE



$$\pi r^2 = \pi \text{ radius}^2$$



CIRCUMFERENCE OF A CIRCLE



$$c = \pi \times d$$

diameter



PROBABILITY

Estimating how many times things happen

Probability of choosing blue = 0.3

If you pick 500 times

$$500 \times 0.3 = \underline{150} \text{ } \textit{Expect to get 150 blues}$$



ANYTHING TO THE POWER ZERO
EQUALS 1

e.g. $17^0 = 1$
 $x^0 = 1$



PERCENTAGES

Non-calculator

To find 10% ÷ by 10

To find 5% half by 10%

To find 1% ÷ by 100

Calculator

Amount $\div 100$ \times how many percent you want Answer



DATA COLLECTION SHEET

means tally chart

e.g.

DRINK	TALLY	FREQUENCY
TEA		
COFFEE		
WATER		
OTHER		



MULTIPLYING DECIMALS

Multiply the numbers, ignoring the decimal point and then put the point in your answer.

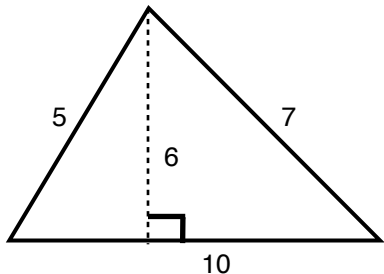
e.g. $37 \times 126 = 4662$

so $3.\underline{7} \times 12.\underline{6} = 46.\underline{62}$


Count how many numbers come after the decimal point in the question.



AREA OF A TRIANGLE



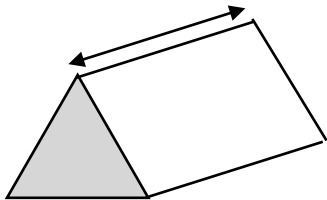
$$\text{Area} = \frac{6 \times 10}{2} = 30$$

Multiply together the lengths that meet at  _____

2



VOLUME OF A PRISM



Area of shape on end x how far it goes back



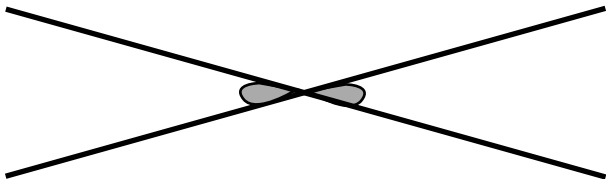
MEAN FROM A GROUPED FREQUENCY TABLE

Add two extra columns MIDDLE and MULTIPLY

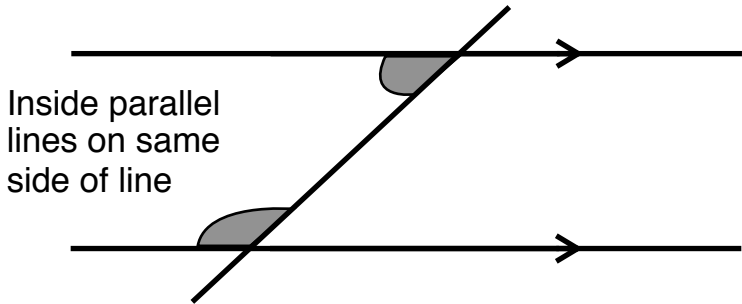
WEIGHT	FREQUENCY	MIDDLE	MULTIPLY
$0 < W \leq 10$	11	5	$11 \times 5 = 55$
$10 < W \leq 20$	14	15	$14 \times 15 = 210$
$20 < W \leq 30$	7	25	$7 \times 25 = 175$
$30 < W \leq 40$	8	35	$8 \times 35 = 280$
How many	→ 40	Total	→ 720

$$\text{Mean} = 720 \div 40 = \underline{18}$$

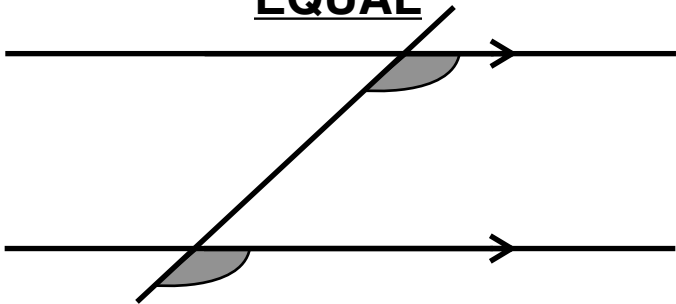
VERTICALLY OPPOSITE ANGLES
ARE EQUAL



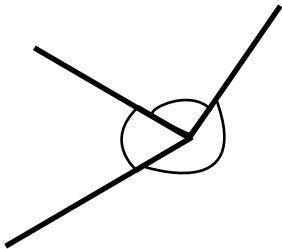
ALLIED ANGLES ADD UP TO 180°



CORRESPONDING ANGLES ARE
EQUAL

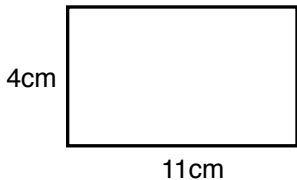


ANGLES AROUND A POINT ADD UP
TO 360°



AREA OF A RECTANGLE

Area = length x width



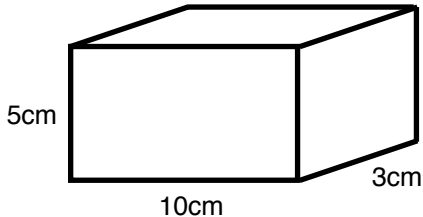
$$\begin{aligned} \text{Area} &= 11 \times 4 \\ &= 44\text{cm}^2 \end{aligned}$$

Units are squared for area



VOLUME OF A CUBOID

Volume = length x width x height



$$\begin{aligned}\text{Volume} &= 5 \times 10 \times 3 \\ &= 150\text{cm}^3\end{aligned}$$

Units are cubed for volume



SIMPLIFYING

$$x + x + x + x = 4x$$

$$\textcircled{2a} \quad \boxed{+ 3b} \quad \textcircled{+5a} \quad \boxed{- 2b} = 7a + b$$

Collect together letters that are the same

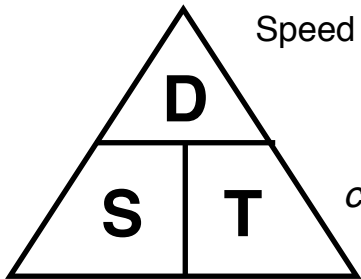
$$a \times a \times a \times = a^3$$

$$2y \times 6z = 12yz$$



SPEED

$$\text{Speed} = \frac{\text{distance}}{\text{time}}$$



cover up the thing you are trying to find



MEAN

Add up the values in the list and divide by how many there are



MODE

Most common value in data



RANGE

Difference between the smallest and the largest value in your data.

Biggest - Smallest



MEDIAN

Middle number when all the data is in order.



SQUARE NUMBERS

Created by multiplying a number by itself

$1^2 = 1$

$5^2 = 25$

$9^2 = 81$

$2^2 = 4$

$6^2 = 36$

$10^2 = 100$

$3^2 = 9$

$7^2 = 49$

$11^2 = 121$

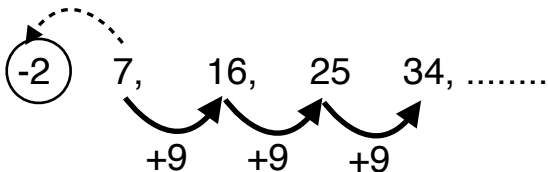
$4^2 = 16$

$8^2 = 64$

$12^2 = 144$



n^{th} TERM OF A SEQUENCE



As it is '+9' each time the rule starts with $9n$.
Then look at what would be before the first
term to find the other bit of the rule

$$9n - 2$$



PERIMETER

Add up all of the sides of a shape



$$x^6 \times x^5 = x^{11}$$

Add the powers



$$x^7 \div x^4 = x^3$$

Subtract the powers

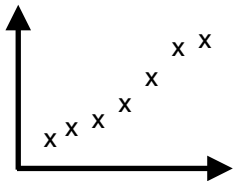


$$(x^7)^2 = x^{14}$$

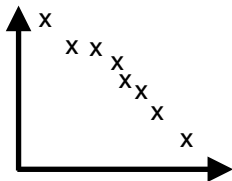
Power of a power you multiply the powers



SCATTER DIAGRAMS



POSITIVE CORRELATION



NEGATIVE CORRELATION

To do estimates from a scatter diagram draw in
the **LINE OF BEST FIT**



SHARE IN A RATIO

Add the ratio numbers

Amount \div total ratio

Multiply each number in ratio by your answer



PYTHAGORAS

To find a missing side in a right angled triangle

1. Square the sides you know.
2. Add to find the longest side OR subtract to find the shorter side.
3. Square root $\sqrt{\quad}$



FRACTIONS

ADDING AND SUBTRACTING

Make the bottoms the same

MULTIPLYING

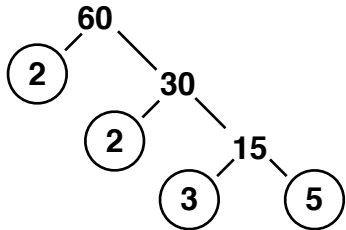
Times the tops, times the bottoms and check you can cancel

DIVIDING

Turn the second fraction upside down and multiply them



PRIME FACTORISATION



$$\text{Answer} = 2 \times 2 \times 3 \times 5$$

Prime numbers are : 2, 3, 5, 7, 11, 13, 17, 19, 21



HIGHEST COMMON FACTOR

Is the biggest number that divides into both



LOWEST COMMON MULTIPLE

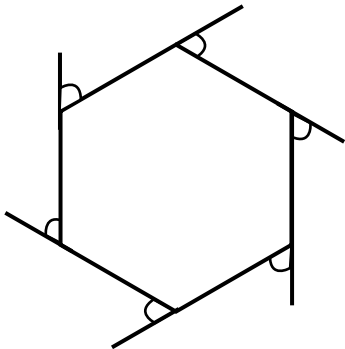
The smallest number in both times tables

HINT - *Write out both of the times tables*



EXTERIOR ANGLES

The exterior angles of any shape add up to 360°



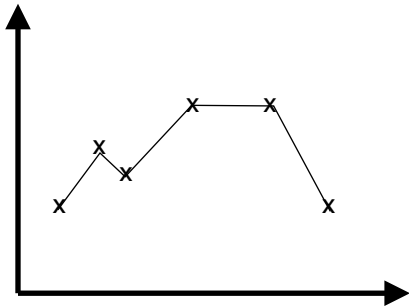
ESTIMATE

Round all numbers to one significant figure and then calculate

$$\frac{362 \times 11.59}{4.975} = \frac{400 \times 10}{5} = \frac{4000}{5} = 8000$$



FREQUENCY POLYGON



- Plot in the MIDDLE of each group
- Join with a ruler



STEM AND LEAF

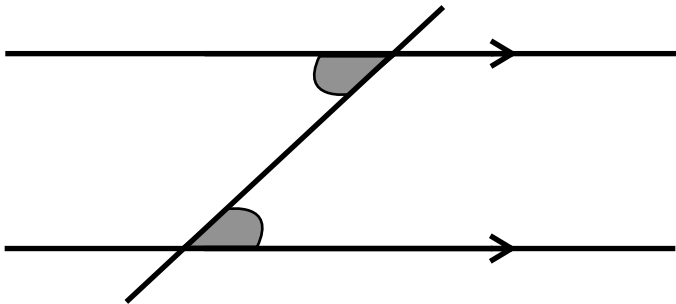
- Remember a KEY!
- Order your leaves smallest to largest

4	1 4
5	6 6 7 8
6	2 7
7	3 9
8	1 5 5 7

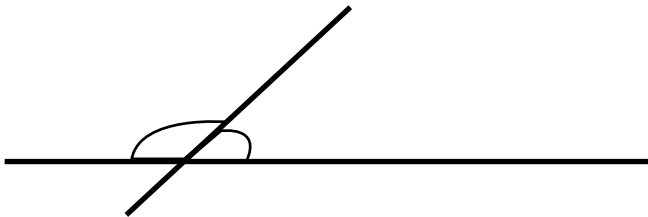
KEY :
e.g. 7/4 = 74



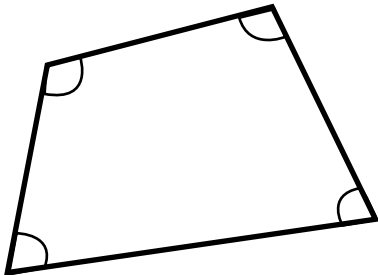
ALTERNATE ANGLES ARE EQUAL



ANGLES ON A STRAIGHT LINE ADD
UP TO 180°

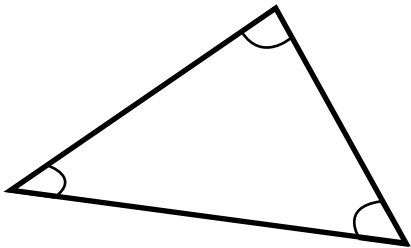


ANGLES IN A QUADRILATERAL ADD
UP TO 360°

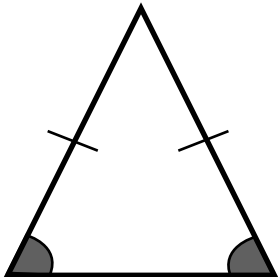


ANGLES IN A TRIANGLE ADD UP TO

180°



BASE ANGLES IN AN ISOSCELES TRIANGLE ARE EQUAL



FACTORISING

PUT BRACKET IN

Take outside the bracket anything that goes into both terms

$$6x + 10 = 2(3x + 5)$$

$$5xy - 15y = 5y(x-3)$$



EXPANDING A BRACKET

Multiply each thing inside the bracket by the amount outside

$$3(2x - 4) = 6x - 12$$

$$2x(5x + 3) = 10x^2 + 6x$$



MIXED NUMBERS

$$2\frac{3}{7} = \frac{17}{7}$$

Keep the bottom the same

Big x bottom + top



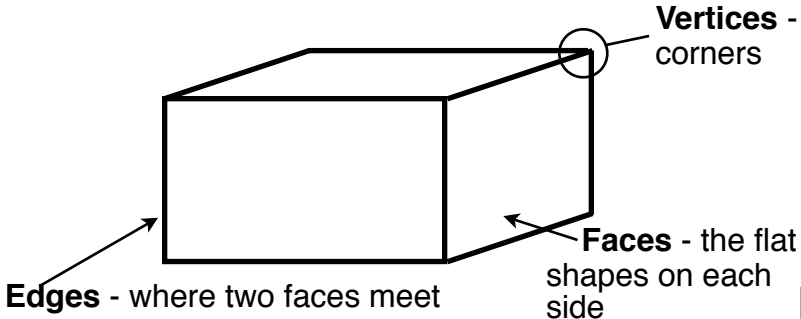
SIMPLIFY / CANCEL FRACTIONS

Divide the top and bottom by the same number

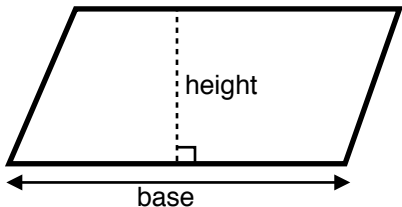
$$\begin{array}{c} \div 10 \qquad \div 2 \qquad \div 3 \\ \curvearrowright \qquad \curvearrowright \qquad \curvearrowright \\ \frac{60}{180} = \frac{6}{18} = \frac{3}{9} = \frac{1}{3} \\ \curvearrowleft \qquad \curvearrowleft \qquad \curvearrowleft \\ \div 10 \qquad \div 2 \qquad \div 3 \end{array}$$



3D SHAPES



AREA OF A PARALLELOGRAM



AREA = BASE X PERPENDICULAR HEIGHT
meets at a right angle



FINDING A FRACTION OF AN AMOUNT

Amount \div bottom \times top

$$\begin{aligned}\frac{2}{5} \text{ of } 70 &= 70 \div 5 \times 2 \\ &= 14 \times 2 = \underline{28}\end{aligned}$$

