

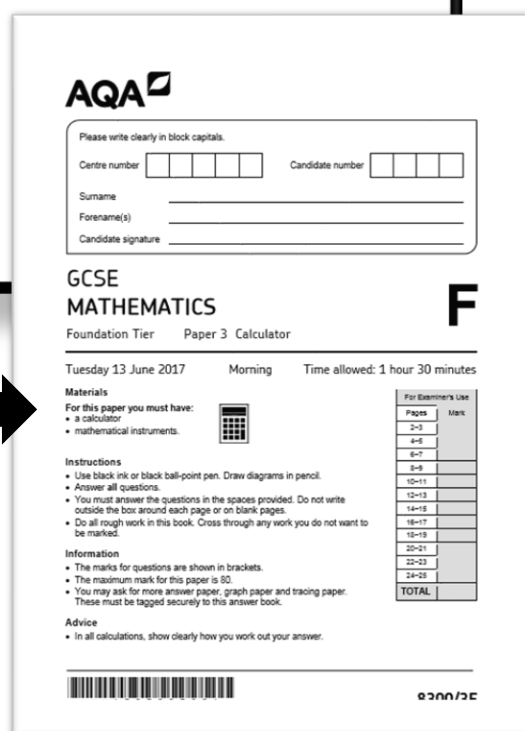
GCSE MATHS AQA – REVISION GUIDE

AQA GCSE MATHS - EXAM DATES

16th May 2024 - Non Calculator

3rd June 2024 – Calculator 1

10th June 2024 – Calculator 2



AQA

Please write clearly in block capitals.

Centre number Candidate number

Surname _____
Forename(s) _____
Candidate signature _____

GCSE MATHEMATICS **F**
Foundation Tier Paper 3 Calculator

Tuesday 13 June 2017 Morning Time allowed: 1 hour 30 minutes

Materials
For this paper you must have:
• a calculator
• mathematical instruments.

Instructions
• Use black ink or black ball-point pen. Draw diagrams in pencil.
• Answer all questions.
• You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
• Do all rough work in this book. Cross through any work you do not want to be marked.

Information
• The marks for questions are shown in brackets.
• The maximum mark for this paper is 50.
• You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

Advice
• In all calculations, show clearly how you work out your answer.

For Examiner's Use	
Pages	Mark
2-3	
4-5	
6-7	
8-9	
10-11	
12-13	
14-15	
16-17	
18-19	
20-21	
22-23	
24-25	
TOTAL	

Barcode and reference number: 8300/3C

Materials

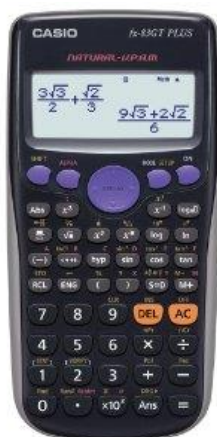
For this paper you must have:

- a calculator
- mathematical instruments.



REMEMBER YOUR CALCULATOR!!!!

Casio FX-83GTPLUS Scientific Calculator



EQUIPMENT CHECK-LIST:

BLACK PEN

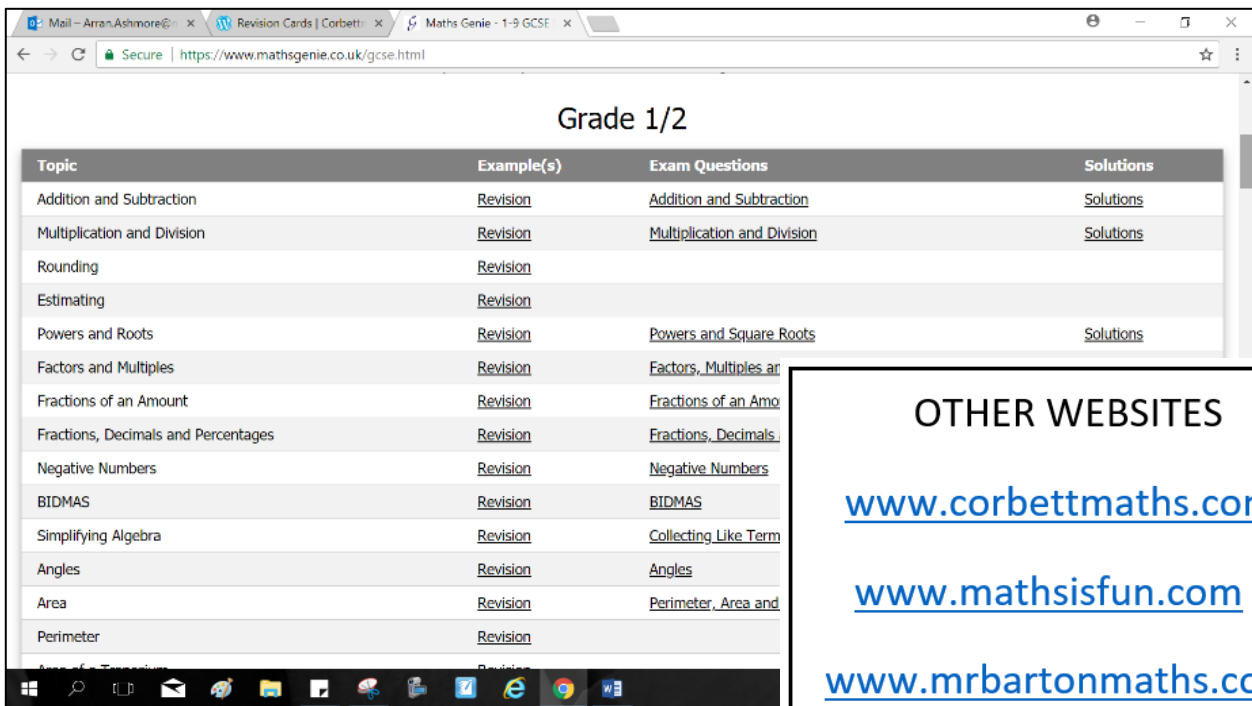
PENCIL

CALCULATOR

GEOMETRY SET

USEFUL WEBSITES AND RESOURCES

*** www.mathsgenie.co.uk – GCSE Grades 1-5 (foundation) ***



The screenshot shows a web browser window with the URL <https://www.mathsgenie.co.uk/gcse.html>. The page title is "Grade 1/2". Below the title is a table with four columns: Topic, Example(s), Exam Questions, and Solutions. The table lists various GCSE topics with links to revision materials, example questions, and solutions.

Topic	Example(s)	Exam Questions	Solutions
Addition and Subtraction	Revision	Addition and Subtraction	Solutions
Multiplication and Division	Revision	Multiplication and Division	Solutions
Rounding	Revision		
Estimating	Revision		
Powers and Roots	Revision	Powers and Square Roots	Solutions
Factors and Multiples	Revision	Factors, Multiples ar	
Fractions of an Amount	Revision	Fractions of an Amo	
Fractions, Decimals and Percentages	Revision	Fractions, Decimals	
Negative Numbers	Revision	Negative Numbers	
BIDMAS	Revision	BIDMAS	
Simplifying Algebra	Revision	Collecting Like Term	
Angles	Revision	Angles	
Area	Revision	Perimeter, Area and	
Perimeter	Revision		

OTHER WEBSITES

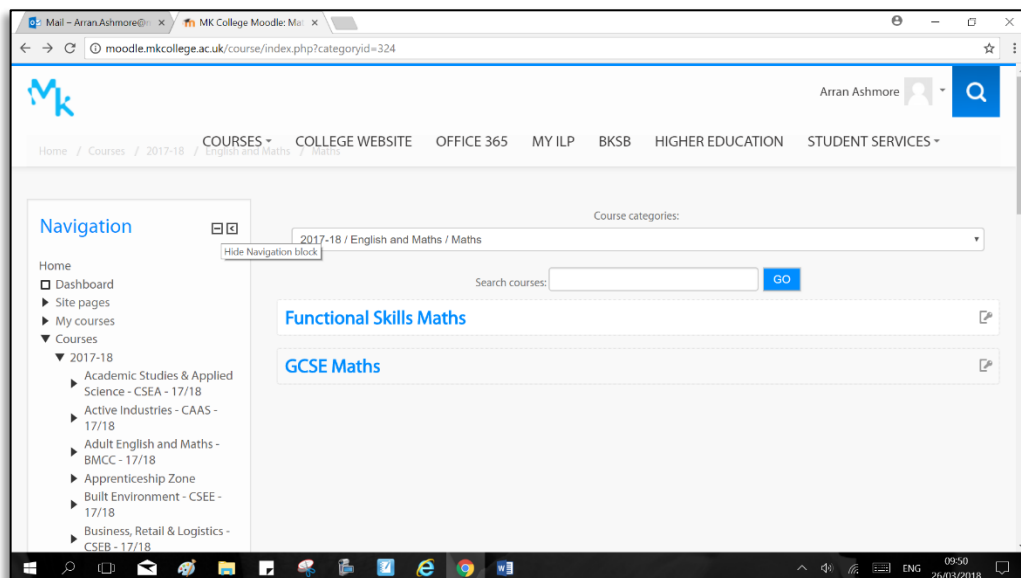
www.corbettmaths.com

www.mathsisfun.com

www.mrbartonmaths.com

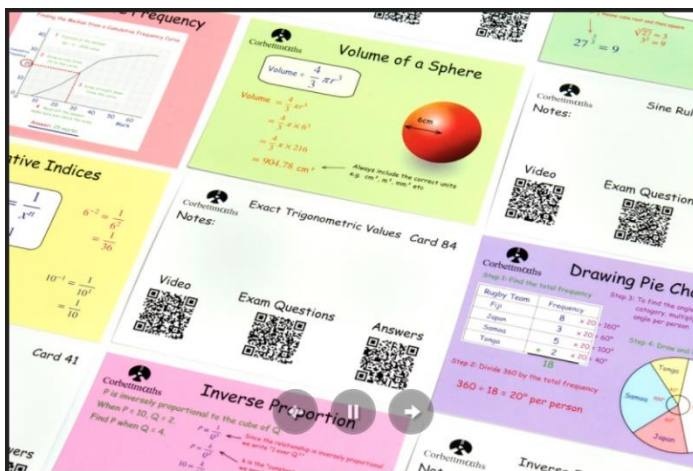
CHECK HERE ALSO (GCSE maths):

<http://moodle.mkcollege.ac.uk/course/index.php?categoryid=324>

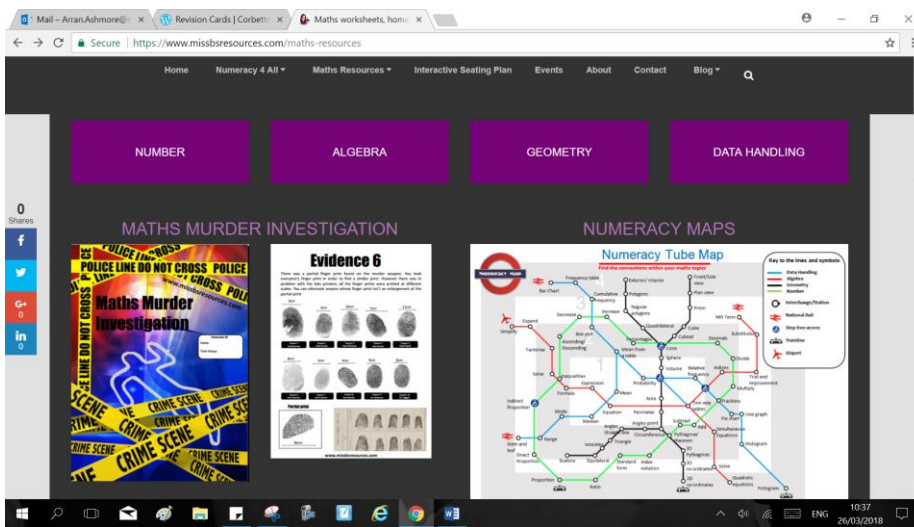


The screenshot shows a Moodle course page for "2017-18 / English and Maths / Maths". The page features a navigation menu on the left and a search bar at the top. The main content area displays two course categories: "Functional Skills Maths" and "GCSE Maths".

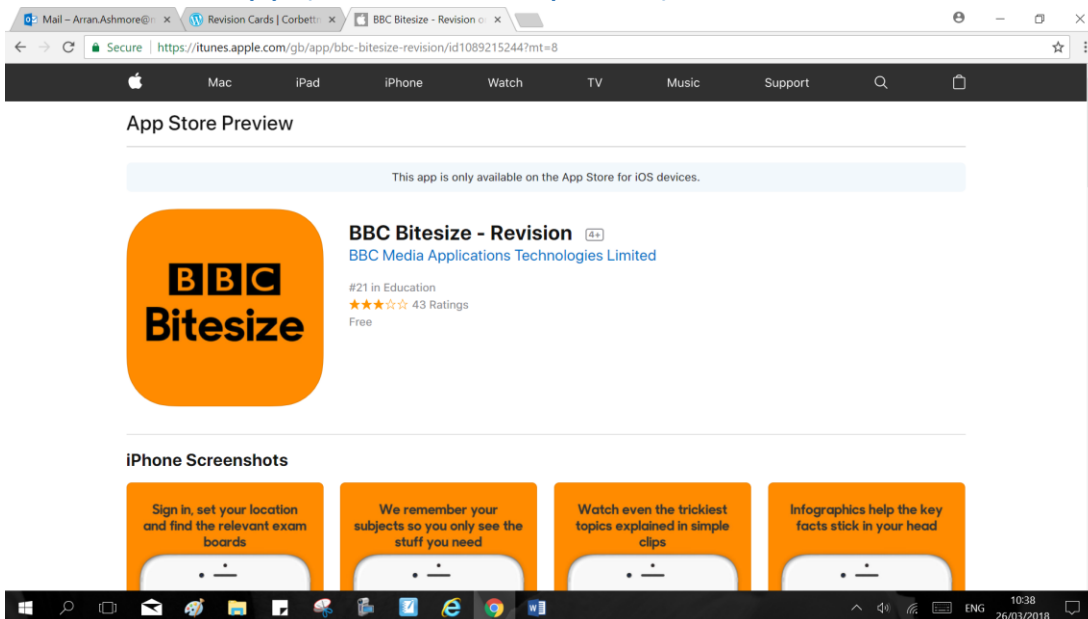
www.corbettmaths.com/revision-cards/



www.missbsresources.com/maths-resources



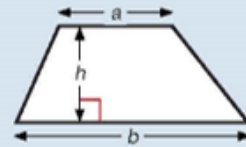
[BBC Bitesize app \(Android and Iphone\):](#)



Info you will be given

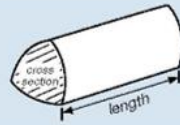
Area

$$\text{Trapezium} = \frac{1}{2}(a + b)h$$



Volume

$$\text{Prism} = \text{area of cross section} \times \text{length}$$



$$\text{Cylinder} = \pi r^2 h$$

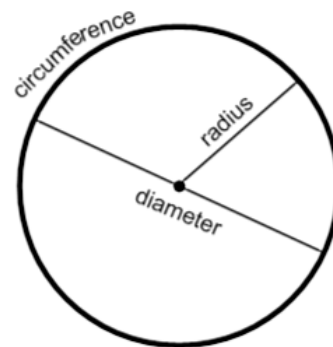


Circles

$$\text{Circumference} = \pi \times \text{diameter}, C = \pi d$$

$$\text{Circumference} = 2 \times \pi \times \text{radius}, C = 2\pi r$$

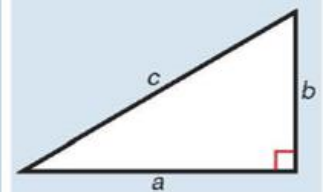
$$\text{Area of a circle} = \pi \times \text{radius squared } A = \pi r^2$$



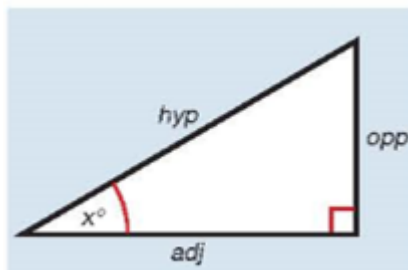
Pythagoras

Pythagoras' Theorem

For a right-angled triangle,
 $a^2 + b^2 = c^2$



Trigonometry

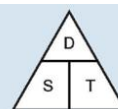


$$\sin x^\circ = \frac{\text{opp}}{\text{hyp}}, \cos x^\circ = \frac{\text{adj}}{\text{hyp}}, \tan x^\circ = \frac{\text{opp}}{\text{adj}}$$

Compound measures

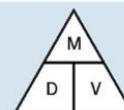
Speed

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



Density

$$\text{density} = \frac{\text{mass}}{\text{volume}}$$





EXAM TIPS

1) Make sure you understand the key word in the question:

- **Write down/state** – No explanation needed
- **Calculate/find/solve/show** – Show your working (step by step!)
- **Draw** – Plot accurately on graph provided and draw (using a ruler and pencil)
- **[3 marks]** – This is an indication of how many steps **you will be required** to show to answer the question

2) Show your working and check your answers:

- **Units** – Ensure you include the units in your final answers
- **Round at the end!** – DO NOT round numbers during a calculation as this will mean the final answer is incorrect.
- **Logical order** – Put your workings in a logical step by step sequence.
- **CHECK/CHECK/CHECK** – Check you have put enough maths per marks and that you have answered the question (YES or NO etc).

3) What are the examiners looking for?

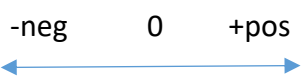
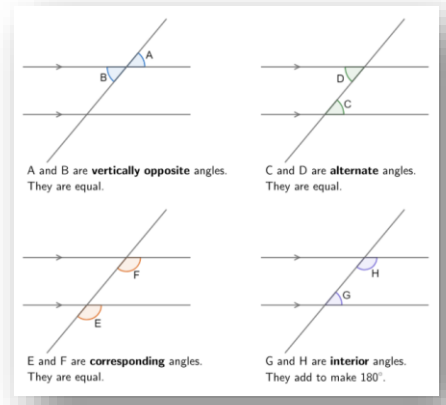
- Work that is clearly set out, easy to follow and with a clear underlined answer.
- Neat drawings and graphs that have been well presented and the correct equipment used.
- Logical working out that clearly leads to the right answer.
- **THE RIGHT ANSWER** – obviously (make it obvious even if you are unsure)

PLACE VALUE CHART											
Billions			Millions			Thousands			Ones		
One Hundred Billions (100,000,000,000)	Ten Billions (10,000,000,000)	Billions (1,000,000,000)	One Hundred Millions (100,000,000)	Ten Millions (10,000,000)	Millions (1,000,000)	One Hundred Thousands (100,000)	Ten Thousands (10,000)	Thousands (1,000)	Hundreds (100)	Tens (10)	Ones (1)
			8	5		0	2	6	1	3	9

smaller < bigger

7=7

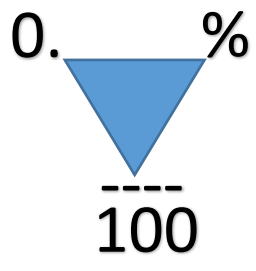
8 ≤ 8,9,10,11.....



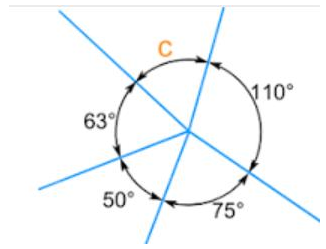
Signs the same Post+ 😊

Signs different - Neg ☹️

Bounds +0.5 and -0.5 eg. upper bound of 13 is 13.5, lower bound is 12.5

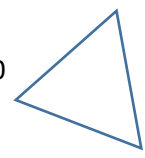


fraction to decimal to percent eg. 0.42 42% 42/100

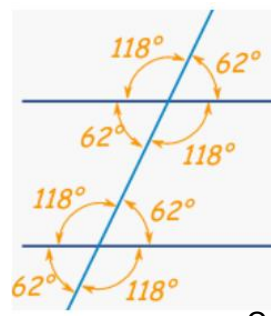


Angles at a point add to 360

Triangles add to 180



Z z angles are the same inside



Quadrilaterals add to 360

BODMAS BIDMAS 3x2+4/6-1



Algebra balance X + 3 = 7 becomes X = 7 - 3

the SAME to both sides !

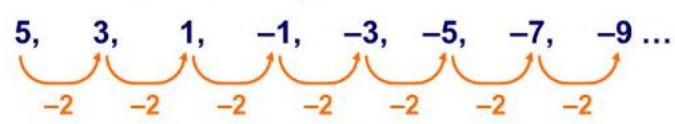


-2 times table starting at 5

5 is different from -2 by 7

The terms in this sequence

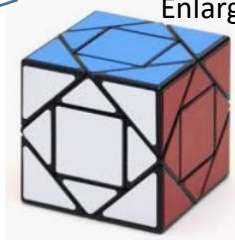
So.... 7 - 2n is the sequence



can be found by subtracting 2 each time.



$Y=kx$



Enlargement

Side $\times k$ (..perimeter)

$\times k^2$ (..area)

$\times k^3$ (..volume)

King	Henry	Died	Unexpectedly Drinking	Chocolate	Milk
K	H	D	U	D	C M
Kilo	Hecto	Deca	Gram Meter Uter	Deci	Centi Milli
1000	100	10		1/10	1/100 1/1000

Kilo Hecto Deka Unit Deci Centi Milli

king henry drinks ukky dark chocolate milk !

eg 310 cm = 3.1 m

METRIC CONVERSIONS !

RATIO

1kg	=	2.2lbs
5 x 1kg	=	5 x 2.2 lbs

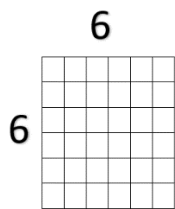
ozs pounds stone tons

fl ozs pints



IMPERIAL CONVERSIONS

in feet yards miles



$6 \times 6 = 36$ so square root of 36 is 6 $\sqrt{36} = 6$

length of the line \longleftrightarrow area of the shape

$$\sqrt{a} + \sqrt{a} = 2\sqrt{a}$$

$$6\sqrt{a} - 2\sqrt{a} = 4\sqrt{a}$$

$$\sqrt{a} \times \sqrt{b} = \sqrt{ab}$$

$$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$$

$$5(2) + 5z = 15$$

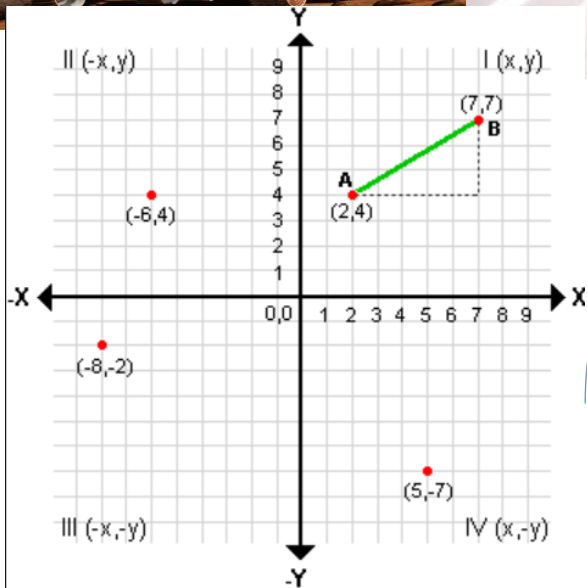
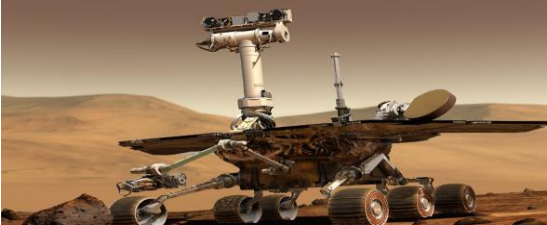
$$10 + 5z = 15$$

$$5z = 5$$

$$z = 1$$



Mean	the average of a set of numbers
Median	the middle number in a set of data
Mode	the number which appears most often in a set of numbers
Range	the difference between the lowest and highest numbers in a data set



Coordinates (x , y) x first, then y

$$y = m x + c$$

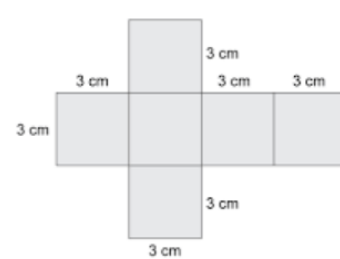
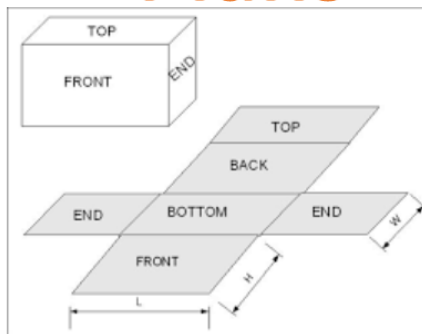
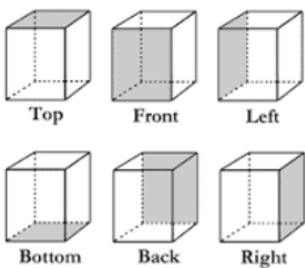
Gradient is change in height (y) / change in run (x)

+c is where the line crosses the y axis

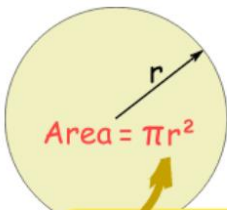
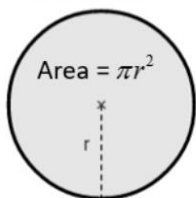
Plans

Nets

Surface Area of a Prism



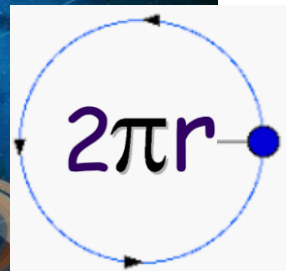
Area of Circle



"Pie Are Squared" ... but they are round!

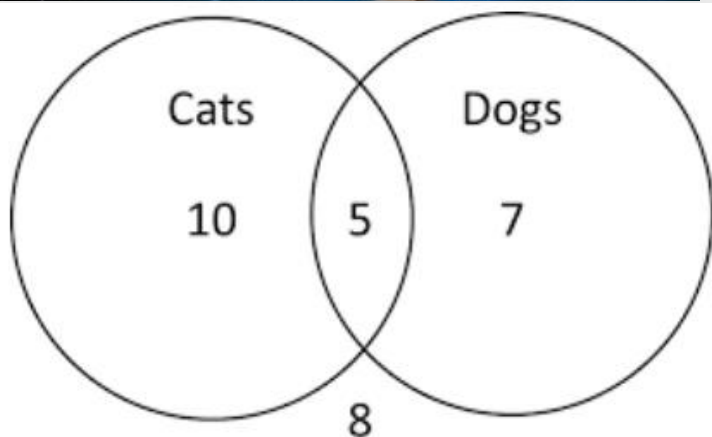


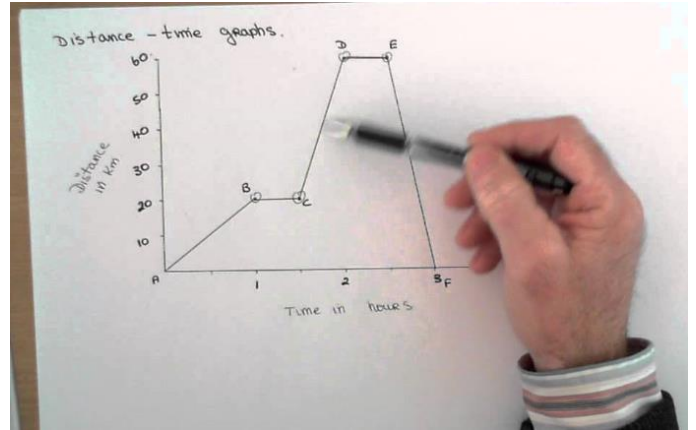
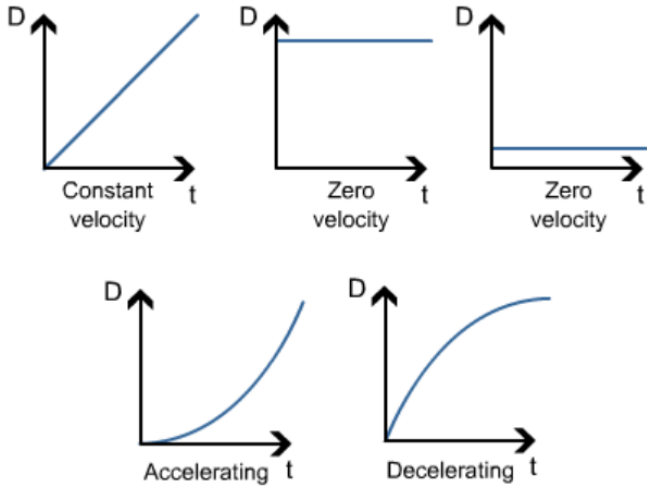
π AARR²



Corbettmaths

Venn Diagrams





Split the graph into sections, describe each...

Directly Proportional

$y \propto x$
 $y = kx$ for a constant k

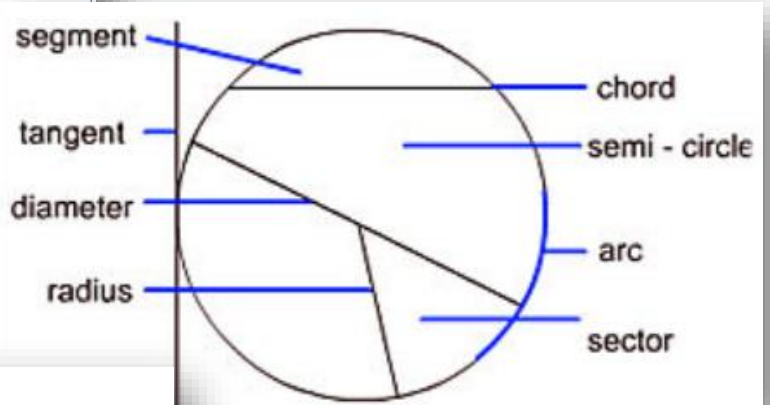
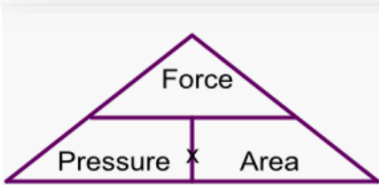
Inversely Proportional

$y \propto \frac{1}{x}$
 $y = \frac{k}{x}$ for a constant k

Distance = Speed x Time

Time = $\frac{\text{Distance}}{\text{Speed}}$

Speed = $\frac{\text{Distance}}{\text{Time}}$



Standard Form

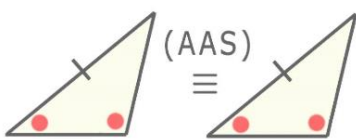
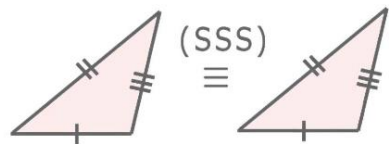
Positive Power = Large Number

$4.3 \times 10^6 = 4\,300\,000$

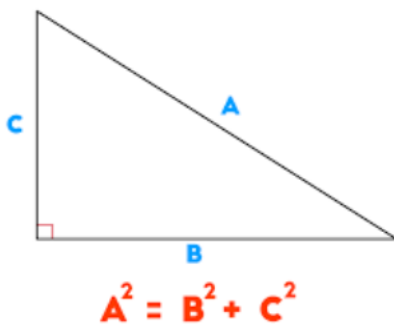
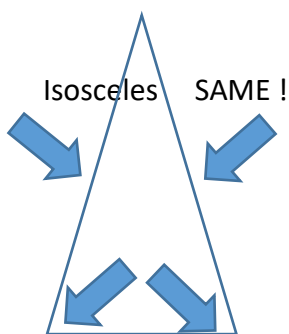
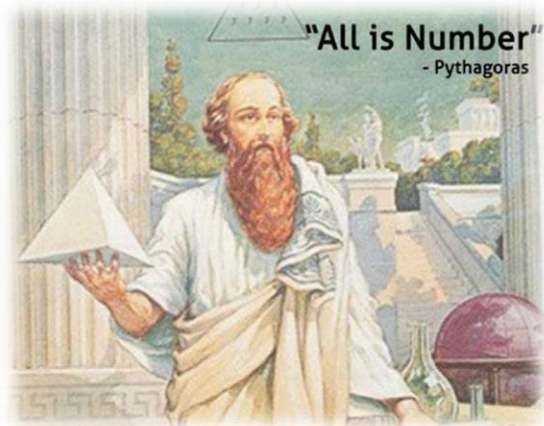
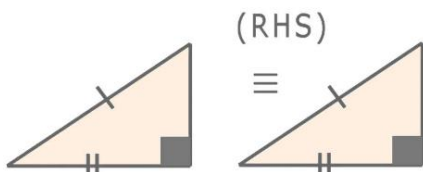
Negative Power = Small Number

$2.1 \times 10^{-3} = 0.021$

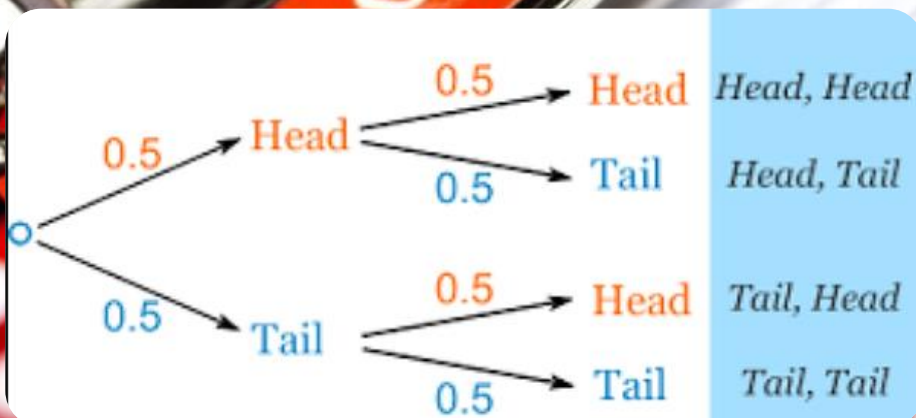
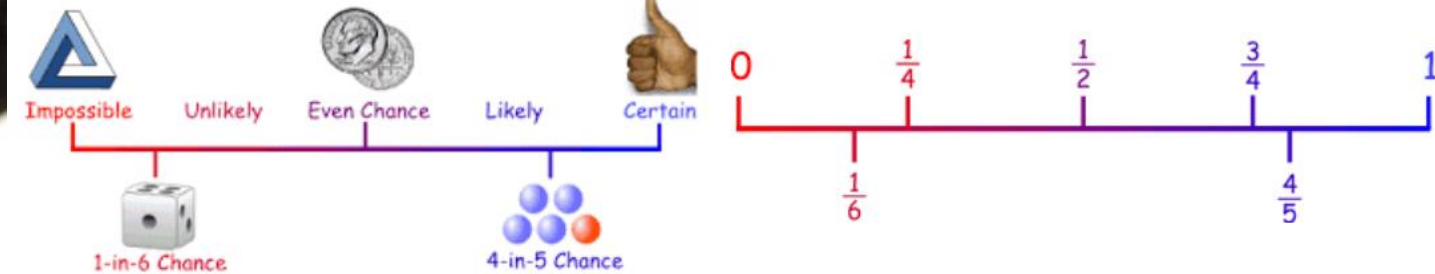
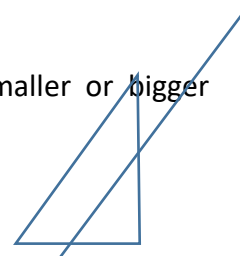


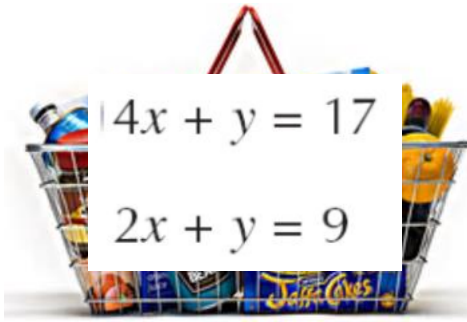


Same (congruent) triangles



Similar – smaller or bigger





$$4x + y = 17$$

$$2x + y = 9$$

Simultaneous, .. make something the same...subtract...solve !



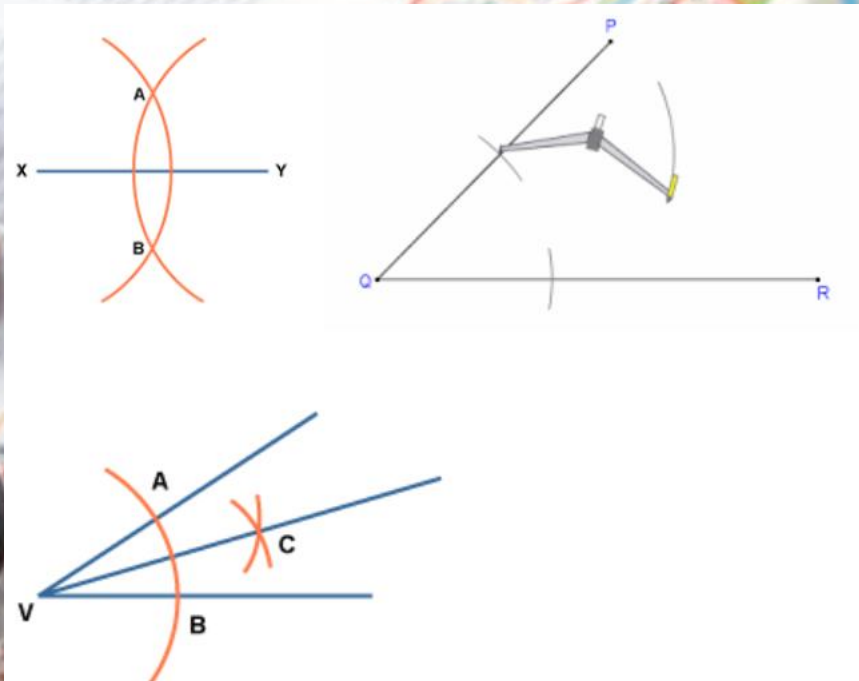
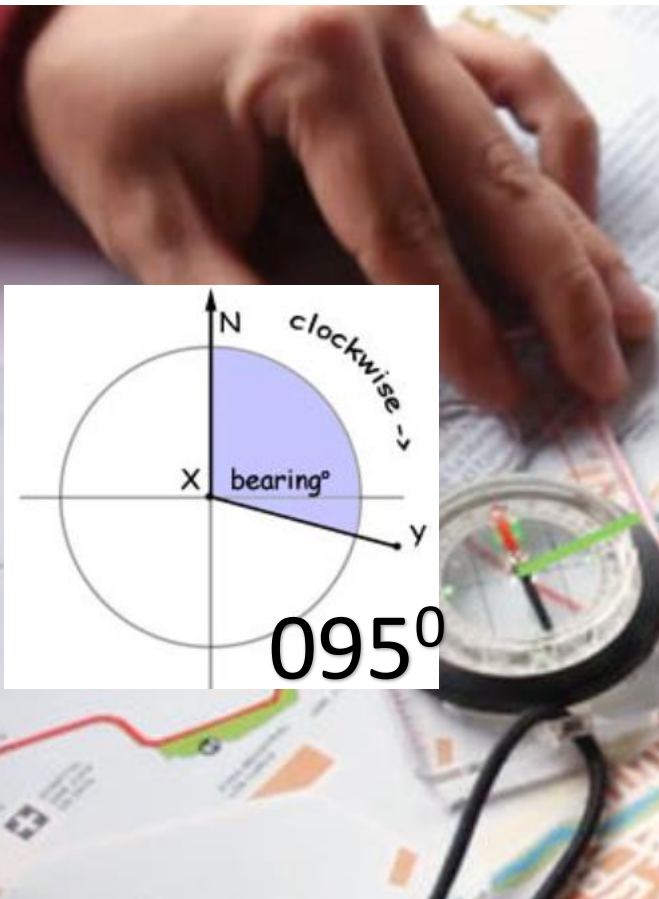
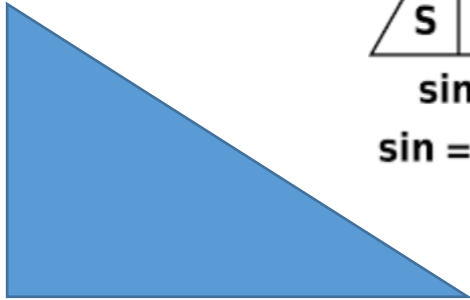
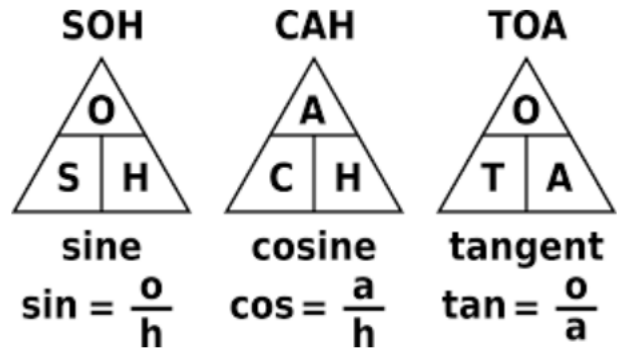
$$4x \text{ // // // // } = 17$$

$$2x \text{ // // // // } = 9$$

$$\sin A = \frac{\text{OPP}}{\text{HYP}}$$

$$\cos A = \frac{\text{ADJ}}{\text{HYP}}$$

$$\tan A = \frac{\text{OPP}}{\text{ADJ}}$$

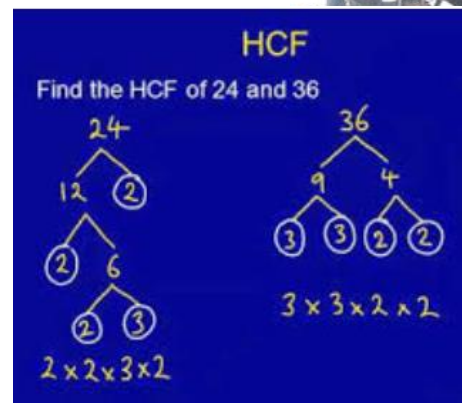




$$60 = 2 * 2 * 3 * 5$$

$$72 = 2 * 2 * 2 * 3 * 3$$

$$\text{LCM} = 2 * 2 * 2 * 3 * 3 * 5$$



Lowest common multiple, Highest common Factor

'QUAD' (4) ratics...

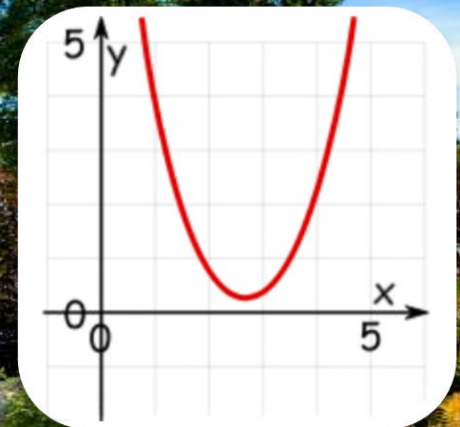
Expanding using the Grid Method

$(6x + 2)(4x - 3)$ Multiply each term

6x	+ 2	
		4x
		- 3

$$x^2 + 7x + 12 = 0$$

$$(x + \underline{3})(x + \underline{4}) = 0$$



Transformations for GCSE Maths

Translation

Rotation

Reflection

Enlargement

