Teesdale School
& Sixth Form Centre

Maths

North East
Learning Trust

Exams

Higher Tier – 3 x 90 minute papers

P1 is a non calculator paper

P2 and P3 are calculator papers

DATE	EXAM	EXAM DETAILS
Fri 20/05/22	Pearson GCSE Maths Paper 1 non calculator	09.00 start for 1 hour 30 minutes
Tue 07/06/22	Pearson GCSE Maths Paper 2 calculator	09.00 start for 1 hour 30 minutes
Mon 13/06/22	Pearson GCSE Maths Paper 3 calculator	09.00 start for 1 hour 30 minutes

Changes for 2023…

Unlike last year, schools will NOT be provided skills lists/content lists for each paper

Formula sheet still in place

Higher Tier Formulae Sheet

Perimeter, area and volume

Where a and b are the lengths of the parallel sides and h is their perpendicular separation:

$$\text{Area of a trapezium} = \frac{1}{2}(a+b)h$$

Volume of a prism = area of cross section × length

Where r is the radius and d is the diameter:

$$\text{Circumference of a circle} = 2\pi r = \pi d$$

$$\text{Area of a circle} = \pi r^2$$

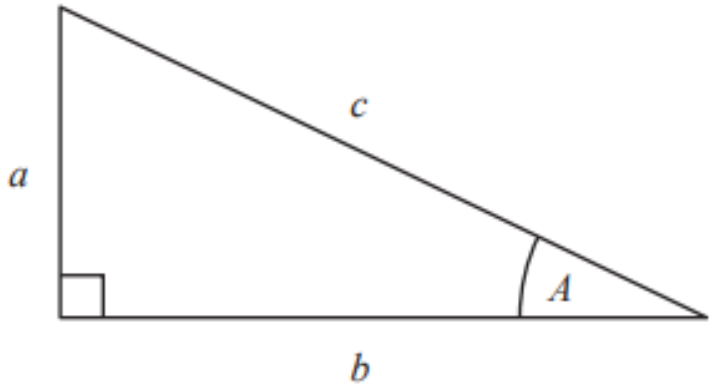
Quadratic formula

The solution of $ax^2 + bx + c = 0$

where $a \neq 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Pythagoras' Theorem and Trigonometry



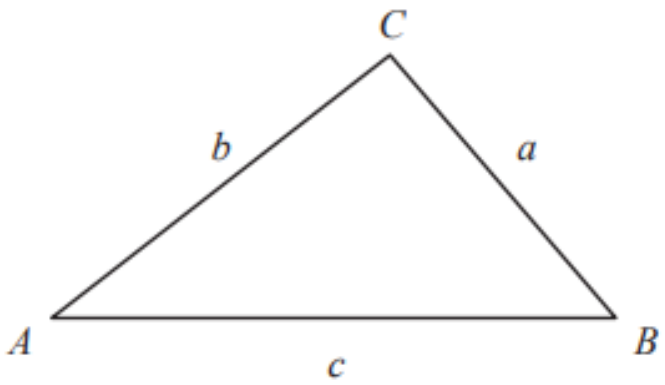
In any right-angled triangle where a, b and c are the length of the sides and c is the hypotenuse:

$$a^2 + b^2 = c^2$$

In any right-angled triangle ABC where a, b and c are the length of the sides and c is the hypotenuse:

$$\sin A = \frac{a}{c} \quad \cos A = \frac{b}{c} \quad \tan A = \frac{a}{b}$$

SOH CAH TOA



In any triangle ABC where a, b and c are the length of the sides:

$$\text{sine rule: } \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\text{cosine rule: } a^2 = b^2 + c^2 - 2bc\cos A$$

$$\text{Area of triangle} = \frac{1}{2}\, a\, b \sin C$$

Not given the "angle" rearranged version"

Compound Interest	Probability
Where P is the principal amount, r is the interest rate over a given period and n is number of times that the interest is compounded: $\text{Total accrued} = P\left(1+\frac{r}{100}\right)^n$	Where P (A) is the probability of outcome A and P (B) is the probability of outcome B: P $(A$ or $B)$ = P (A) + P (B) – P $(A$ and $B)$ P $(A$ and $B)$ = P $(A$ given $B)$ P(B)

For example, increasing by 3% for 4 years:

100% + 3% = 103% = 1.03

So $\text{"}initial\ amount\text{"} \times 1.03^4$

Alongside these formulae, you will be given specific other formulae to be used in a specific question, such as volume of a cone or sphere and the curved SA of a cone or sphere.

Area of a triangle	$\frac{1}{2}(b \times h)$
Area of a Trapezium	$\frac{1}{2}(a+b) \times h$
Area of a parallelogram	$b \times h$
Area of a circle	πr^2
Circumference of a circle	πd
Volume of a cylinder	$\pi r^2 h$
Volume of a pyramid/cone	$\frac{1}{3} \times$ area of base $\times$ h
Density	$\frac{mass}{volume}$
Pressure	$\frac{force}{area}$
Speed	$\frac{distance}{time}$
Pythagoras' Theorem	$a^2 + b^2 = c^2$
Sin (x)	$\frac{opp}{hyp}$
Cos (x)	$\frac{adj}{hyp}$

Tan (x)	$\frac{opp}{adj}$
General equation of a straight line	$y = mx + c$
Gradient	$m = \frac{change\ in\ y}{change\ in\ x}$
Formula to work out the equation of a line	$y - y_1 = m(x - x_1)$
Quadratic formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Sine rule (missing angle)	$\frac{sinA}{a} = \frac{sinB}{b} = \frac{sinC}{c}$
Sine rule (missing side)	$\frac{a}{sinA} = \frac{b}{sinB} = \frac{c}{sinC}$
Cosine rule (missing side)	$a^2 = b^2 + c^2 - 2bccosA$
Cosine rule (missing angle)	$cosA = \frac{b^2 + c^2 - a^2}{2bc}$
Area of a triangle	$\frac{1}{2}absinC$
Area of a sector	$\frac{\vartheta}{360} \times \pi \times r^2$
Length of an arc	$\frac{\vartheta}{360} \times \pi \times d$

Maths revision

What do I need to know – recall of facts and rules - LCWC

- Angle rules
- Laws of indices
- Circle theorems
- Similarity rules
- Frequency density
- Compound measure formulae
- Sets in a Venn diagram from set notation

Maths revision

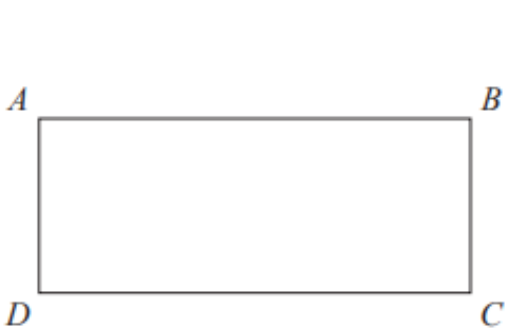
What do I need to be able to do – core skills for each topic

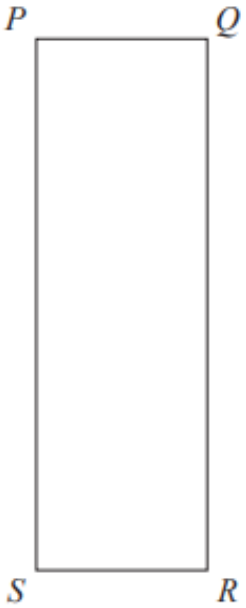
- Solve simultaneous equations
- Calculate an interior angle in a regular polygon
- Add/subtract algebraic fractions
- Calculate a formula from direct or inverse proportion

Maths revision

WHEN do I need to use each skill – application to exam questions

Here are two rectangles.





$QR = 10\,\text{cm}$
$BC = PQ$

The perimeter of $ABCD$ is 26 cm
The area of $PQRS$ is $45\,\text{cm}^2$

Find the length of AB.

Lessons

- Key skills sheets: targeted for each skills set and by paper
- Exam style practise in lessons: previous exam questions to build familiarity and exposure
- Exam papers with full solutions

Outside of lessons

- Revision sessions on Tuesday after school
- Revision task Tuesday form time
- Exam packs (ready for after the mocks) with worked solutions will be uploaded to POD and Teams
- Sparx and video tutorials online

Week beginning	Lesson Topic	Retrieval Topic	Papers	Weekly Intervention
	Review papers and EBI tasks		Edexcel 2018 June Paper 2	MOCK WEEK OFF
13/3/22	*P1Q18: indices and equations* *P1Q19: solving equations with alg. fractions*	*P1Q8: Mean from a freq table* *P1Q6: Estimating solutions from graphs*	Edexcel 2018 June Paper 3	MOCK WEEK OFF
20/3/22	P1Q16: Algebraic probability (incl. reverse trees) P1Q20: equations of tangents and circles		Edexcel 2018 Nov Paper 1	Surds, indices and standard form
27/3/22			Edexcel 2018 Nov Paper 2	Trigonometry: RAT trig, 3D trig and exact values
03/4/22 10/4/22	**Easter break**		Edexcel 2018 Nov Paper 3 Edexcel 2019 June Paper 1	
17/4/22	Combining ratio with multiple parts P3:Q14 Solve linear and non-linear simultaneous equ P3:Q16		Edexcel 2019 June Paper 2	*Aiming for 9s problems packs* *Non-calc*
24/4/22	Geometric vectors with ratio P3:Q18 Solving quadratic inequalities P3:Q21	Quadratics: solving, sketching graphs, inequalities and simultaneous equ.	Edexcel 2019 June Paper 3	*Aiming for 9s problems packs* *Non-calc*
01/05/22	Laws of indices – problem solving P3:Q12 Combining alg. Fractions with DOTS P3:Q22	Statistics: CF/Box-plots, Freq polygons, Histograms and Avgs	Edexcel 2019 Nov Paper 1	*Aiming for 9s problems packs* *Calc*
8/5/22	Non-calculator trigonometry problems P1:Q18 Functions – inverse and composite P1:Q21	Number: percentages, ratio, direct/inverse proportion	Edexcel 2019 Nov Paper 2	*Aiming for 9s problems packs* *Calc*
15/5/22	Paper 1 this week	General paper 2/3 revision topics	Edexcel 2019 Nov Paper 3	*Paper 1 target skills*

Step 1	Step 2	Step 3	Step 4	Step 5
Know your key formulae and facts	**Learn each topic**	**Topic exam-style questions**	**Practice papers and mixing topics**	**Additional support**
Look/cover/ write/check or Flash cards	Revise and practise key topics on Hegarty Maths (or from a revision guide with practise questions)	Complete exam pack on that topic (see POD) to make sure you are 100% with the exam style	Practice lots of past papers so you can jump between topics, recognise key instructions and pick up marks!	Attend *topic of the week* sessions Tuesday after school
At least 10mins every week – carefully check your answers – no mistakes!	Write your notes clearly with diagrams if they help. Try some questions… Show your working clearly. Check your answers and keep trying until you've cracked it!	Complete pack of exam questions for the topic… Check answers q by q – where can you pick up marks? Try more questions and check as you go.	IN CLASS: EVERY THURSDAY 1. Try to complete as many of the questions as you can – try to pick up at least one mark on **every** question 2. Use the time carefully – work by yourself and see what you can do yourself in the time 3. Listen and watch the answers carefully 4. Write your corrections in carefully and make sure you understand each line. AT HOME: EVERY WEEK 1. Try to complete as many of the questions as you can – try to pick up at least one mark on **every** question 2. Use your notes/revision guide to give you a prompt 3. Get help with questions you don't understand 4. Check answers carefully – watch the video solutions/read through solutions on Teams when you need more than a quick fix. 5. Write your corrections in carefully and make sure you understand each line. 6. Hand in your effort each Friday and check any feedback	You will be given a "core skills" 5 quick questions on the topic of the week. Attempt the questions. The teacher will show you how to complete the skill. Write the full corrections out for each skill – these will be useful for further revision. Attempt some more questions from POD (see step 3) and in the after school session **Keep your skills sharp with Key Skills sheets**

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Year 11: Higher Spring Assessment Results Name:

Paper 1	Paper 2	Paper 3	Total and grade	Marks from the next grade

Paper 1H - Non-calculator				
Qu	Topic	Skill	/ Total	Revised?
Q01		Solve linear inequalities	2	
Q02		Primes, factors, multiples	2	
Q03		Ratio in real context	5	
Q04		Standard form	4	
Q05		Exterior and interior angles	3	
Q06		Solve quadratic equations	6	
Q07		Use compound units	3	
Q08		Measure if central tendency	3	
Q09		Surface area and volume	3	
Q10		Measures of spread	6	
Q11		Theoretical probability	3	

Paper 2H - Calculator				
Question	Topic	Skill	Mark/Total	Revised?
Q01		Algebraic manipulation	5	
Q02		Transformations	2	
Q03		Error interval	2	
Q04		Standard units and compound units	5	
Q05		Geometrical problems	4	
Q06		Compound interest	3	
Q07		Units of measure	4	
Q08		Roots and powers	2	
Q09		Use compound units	3	
Q10		Box plots	5	
Q11		Direct and inverse proportion	3	
Q12		Gradients and intercepts	2	

This is a QR code for the “revision by topic” for foundation students
Each topic has a revision pack with full worked solutions for you to use

From your list of topics on the self-review table, you can now work independently on any specific skill on top of the skills we will recap in lessons (see your Teach Out plan for your class) and weekly exam papers

Useful links

Practice papers
https://www.mathsgenie.co.uk/papers.html

Topic Packs
https://www.mathsgenie.co.uk/gcse.html