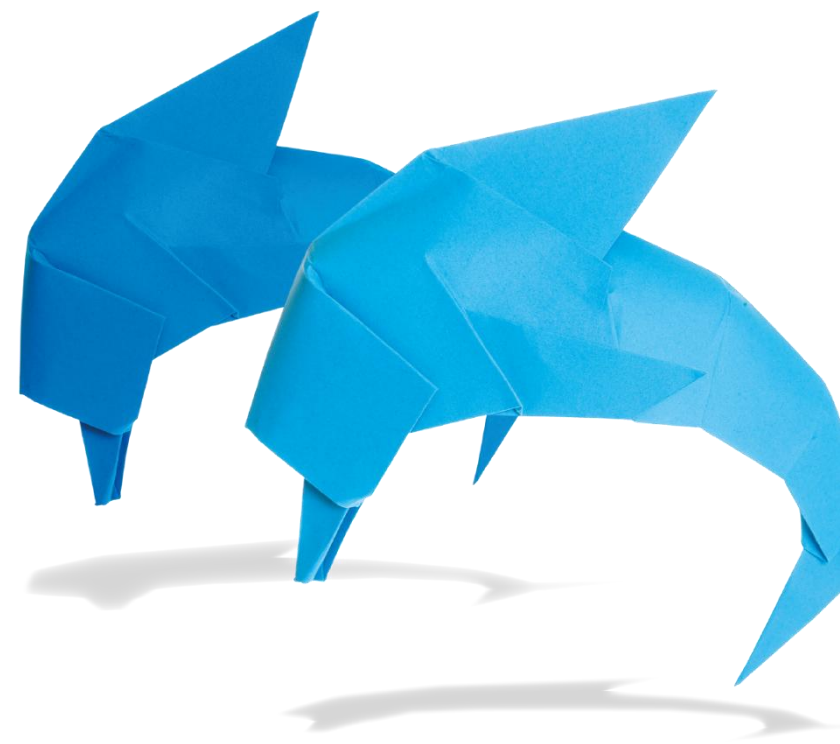


GCSE Mathematics

Maths Revision and Exam Preparation



Chris Seager and Mel Muldowney



Welcome!

First and foremost... we are teachers!

- Most improved school in England (TWICE!!!!)
- TES Maths Team of year

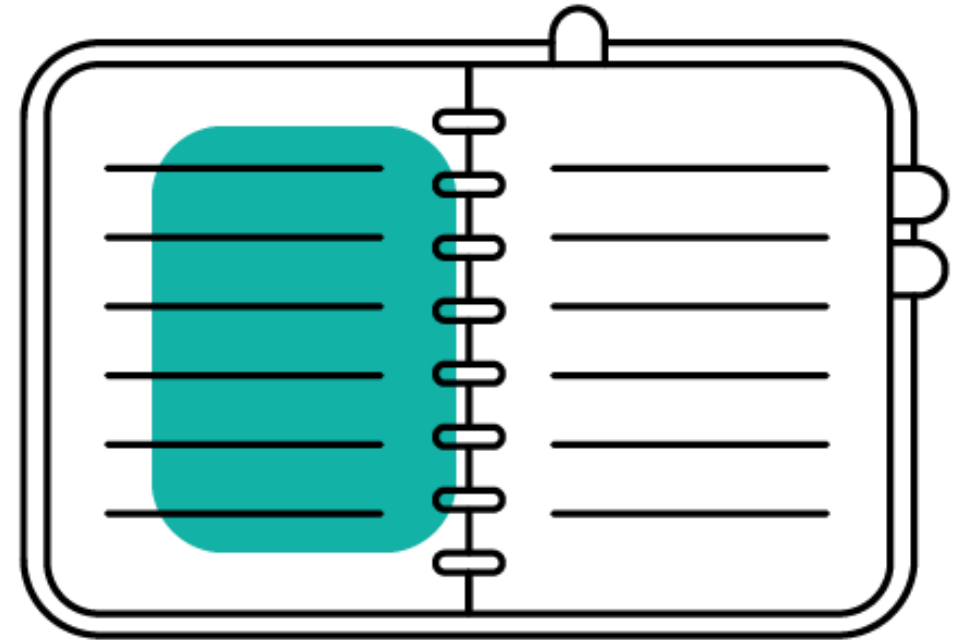
JustMaths



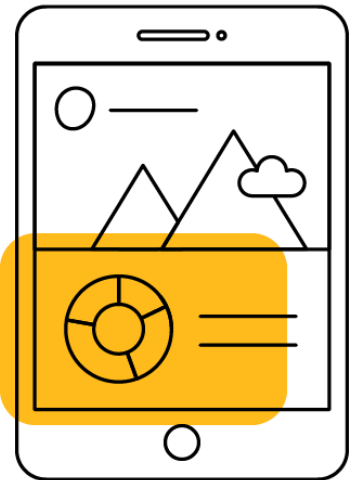
Aims and objectives


After this, we hope you will:

- have some revision take-aways and ideas on how to best support year 11 in the **final 13 weeks**.




POLITE REMINDER – Download the Pearson Authenticator App!




 **Pearson**

1 Select verification method ————— 2 **Authenticate** ————— 3 Verified

Authenticator App Passcode


Enter the one-time 6-digit passcode located in the Pearson Authenticator App. 


Passcode 

Must be at least 6-digits

Authenticate



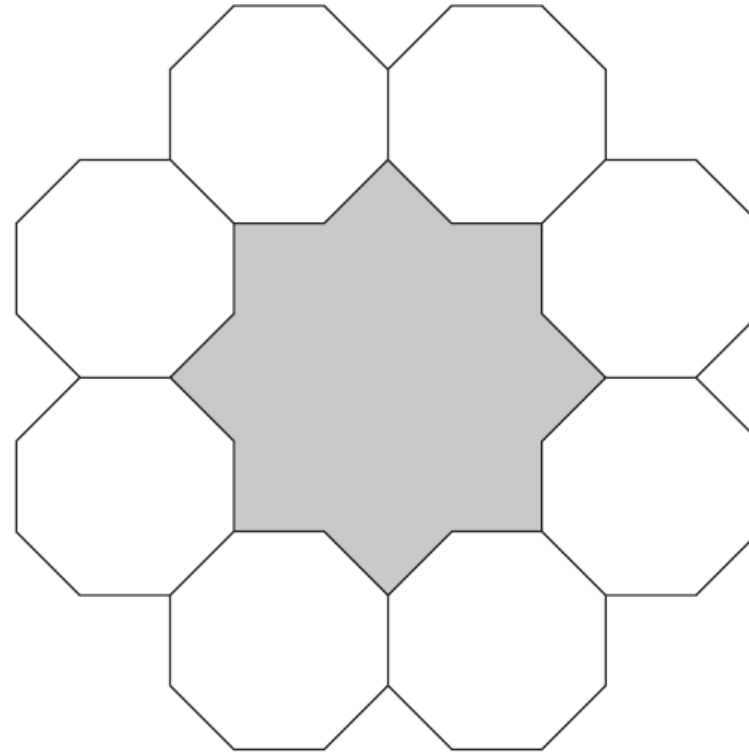
 **Pearson**

Enter verification code 

Submit

The question of 2023 that everyone was talking about...

24 The diagram shows 8 identical regular octagons joined to enclose a shaded shape.



Each octagon has sides of length a .

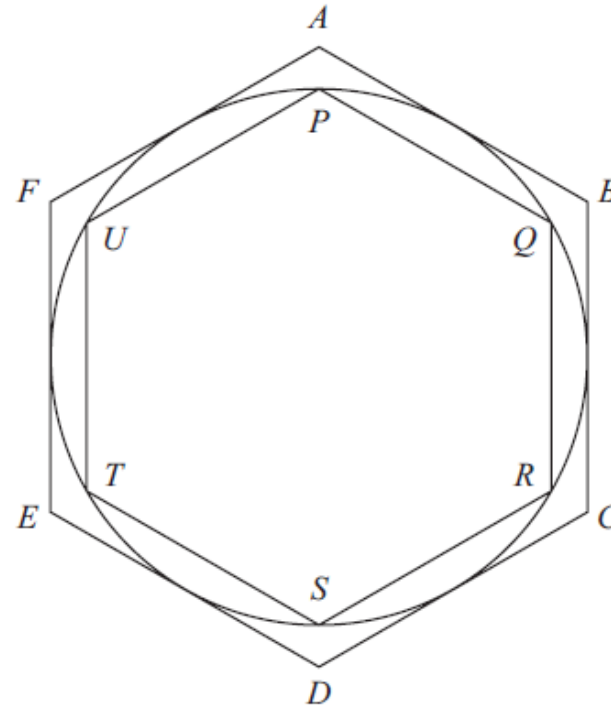
Find, in terms of a , an expression for the area of the shaded shape.

Give your answer in the form $p(2 + \sqrt{2})a^2$ where p is an integer.

You must show all your working.

The question of 2024 that everyone was talking about...

21 The diagram shows a circle, radius r cm and two regular hexagons.



Each side of the larger hexagon $ABCDEF$ is a tangent to the circle.
Each side of the smaller hexagon $PQRSTU$ is a chord of the circle.

By considering perimeters, show that

$$3 < \pi < 2\sqrt{3}$$

What will
2025's be?

2025 Dates

GCSE Maths

Thursday 15 May am
Wednesday 4 June am
Wednesday 11 June am

GCSE Statistics

Monday 2 June am
Friday 13 June pm

Level 2 Extended Maths Certificate

Thursday 12 June pm
Wednesday 18 June pm

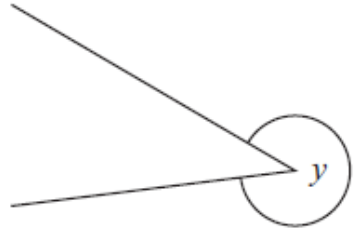
Talking of which

Countdown clocks



Don't forget the basics!

3 Write down the mathematical name for the type of angle marked y .



(Total for Question 3 is 1 mark)

The diagram shows a tree and a man.



The man is of average height.

The tree and the man are drawn to the same scale.

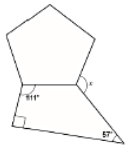
(a) Write down an estimate for the real height, in metres, of the man.



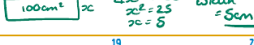
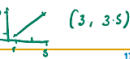
Foundation paper challenge!

Some ideas...

Monthly maths

SEPTEMBER... A LITTLE BIT OF MATHS EVERY DAY JustMaths

1 Chris weighs 12 stone 8 pounds. Fize weighs 85 kilograms. Who is heavier, and by how much? 1 stone = 14 pounds. 1 kilogram is approximately 2.2 pounds.	2 Calculate $(3.7 \times 10^5) + (4.1 \times 10^5)$.	3 Round 0.000698765 to 1 significant figure	4 What is the remainder when 250 is divided by 8?	5 Simplify fully $\frac{4m^2 \times m^5}{2m^4}$	6 Dann invests £8240 for 2 years at 3% per annum compound interest. Find the compound interest earned in two years?	7 Write 510 as a product of its prime factors
8 The total cost of 4 magazines is £3.60. Each magazine costs the same amount. How much do 14 magazines cost?	9 Solve $x - 7 = 11$	10 A shape is made up of five identical rectangles. The area of the complete shape is 500 m ² . The width of each rectangle is 4 m. Calculate the length of one of the rectangles	11	12 Factorise $x^2 + 2x - 15$	13 Julia & Hannah earned £45 by washing cars. They agreed to share the money in the ratio of the time they each spent washing cars. Julia washed cars from 10:15 a.m. to 11:45 a.m. and Hannah washed cars from 1:45 p.m. to 4:45 p.m. How much did each person receive?	14
15 Simplify $3p \times 3p$	16 Find the value of $6x + 2y$ when $x = 7$ and $y = -10$.	17 Given: $18 = 7 + a$ $a + 5 = 10 + b$ Work out the values of a and b	18 What is the median number? 20, 5, 1, 40, 17, 15	19 Find 2.7% of 54. Give your answer correct to 2 decimal places	20 Seven times a whole number, x , subtract twenty-six is greater than forty-four. What is the least possible value of this whole number?	21 Calculate: $1\frac{2}{5} + \frac{3}{8}$
22 Emma has 163 marbles. Laura has 285 marbles. Laura gives some marbles to Emma so that they both have the same number of marbles. How many marbles does Laura give to Emma?	23 In May, a bag of apples cost £1.40. From May to June, the price increased by 15%. From June to July, the price decreased by 18%. From July to August, the price increased by 2%. Calculate the price in August.	24	25 Solve the equation $8y - 3 = 2(2y + 8)$	26 Find the sum of $1\frac{2}{5}$ of 570 and $2\frac{3}{11}$ of 6204	27	28 Calculate the size of angle x 
29 Which metric unit which is best used for: - length of a pencil, - distance from London to Paris, - volume of a swimming pool?	30 Use either the symbol $<$ or $>$ to make each statement true. 3 7 -15 11 -4 -5	REMEMBER: The best way to revise maths is to "do Maths"!				

A LITTLE BIT OF MATHS EVERY DAY ...						
TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY	
1 Work out the value of 5.43×237.14 1287.6702	2 Write this statement in words: $67.32 < 600$ Sixty seven point three two is less than six hundred	3 What is the order of rotational symmetry of this shape?  2	4 Write: 7.997 correct to 1 decimal place. 7.9 470 correct to 1 significant figure. 500	5 Is line AB a straight line? Explain your answer No. The sum of the angles is greater than 180° 	6 The area of a rectangle is 100 cm ² . The length of the rectangle is 4 times its width. Work out the width of this rectangle.  width = 5cm	
7 Calculate: -2×12 -24 -6×-4 24	8 What is $a + b$? $a = (\frac{1}{2})$ and $b = (\frac{1}{3})$ (\frac{5}{6})	9 What is the coordinate of the midpoint between (1,2) and (5,5)?  (3, 3.5)	10 Simplify fully $\frac{m^2 \times m^{-8}}{m^{-1}}$ m^{-5}	11	12	13
14 Solve $7x + 2 = 3x + 4$ $4x = 2$ $x = \frac{1}{2}$ $x = \frac{1}{2}$	15 Christian says: $\sqrt{196} = 196 \div 2 = 98$ Why is he wrong? $\sqrt{196} = 14$	16 Write 80 as a product of its prime factors $2^4 \times 5$	17 Factorise and solve $x^2 - x - 2 = 0$ $(x+1)(x-2) = 0$ $x = -1$ $x = 2$	18	19	20
21 Write 0.0005017 in standard form 5.017×10^{-4}	22 Calculate: $\frac{3}{5}$ of 75 45	23 Write down the value of 2^2 $\frac{1}{2^2} = \frac{1}{4}$	24 A number "x", is rounded to 2.15 correct to 2 decimal places. What is the error interval of x ? $2.145 \leq x < 2.155$	25	26	27
28 What is the lowest common multiple of 14 and 35? 70	29 Calculate: $2\frac{1}{5} + 2\frac{5}{8}$ $4\frac{13}{40}$	30 Expand $x^2(2xy + 4x^2y)$ $2x^3y + 4x^4y$	31 REMEMBER: THE BEST WAY TO REVISE MATHS IS TO "DO MATHS"!	32	33	34

Some ideas...

Final Countdown

Countdown to your final Maths exam ... Higher Tier only ... Part 1 (2020) Integers, Four Operations and Product Rule

	Marks	Actual	😊	😐	😞
Q1. Use one calculation to solve similar	3				
Q2. Metric conversions	3				
Q3. Multiply and subtract fractions	3				
Q4. Multiply and subtract mixed fractions	6				
Q5. Product rule	3				
Q6. Combinations	2				
Q7. Proportional reasoning	4				
Q8. Area problem	4				
Q9. Use of calculator / Rounding / Standard form	5				
Q9. Fractions & percentages	4				

37

NON-CALCULATOR UNLESS SPECIFIED

Countdown to your final Maths exam ... Crossover ... Part 2 (2020)

	Marks	Actual	😊	😐	😞
Q1. Rounding & error intervals (Clip 9)	1				
Q2. Exchange rates (Clip 8)	3				
Q3. Venn Diagrams (Clip 53)	6				
Q4. Rounding	1				
Q5. Exchange rates (Clip 8)	6				
Q6. Exchange rates (Clip 8)	3				
Q7. Venn Diagrams (Clip 53)	6				
Q8. Rounding & error intervals (Clip 9)	2				

28

NON-CALCULATOR UNLESS SPECIFIED



Countdown to your final Maths exam ... Higher Tier only ... Part 1 (2020) Integers, Four Operations and Product Rule Examiners Reports & Markscheme

Examiners Reports

Q1. Since it was rare to see any working shown it was not always clear how an answer had been arrived at. Parts (a) and (c) were best answered, but there were many wrong answers to part (b), particularly 0.37 or 3.7

Q2. Many students did not read or fully comprehend the information given in this question. Some read 150 grams as the weight of a half of the hosepipe, many multiplied 20 by a half instead of dividing. A significant number forgot to add on the weight of the reel and left an answer of 6000g or 6kg. Some students did make mistakes in the addition of the 1.4, suggesting perhaps that a number did not have a calculator. Some students wrote their final answer as 7400kg and failed to gain full marks.

Q3. Part (a) was found to be straightforward by the majority of the entry. Of the rest, there were some who first found a common denominator and then tried to multiply numerators together and denominators together, which, if correct, would gain the one mark available. More often the 'common' denominator was left as that and the numerators multiplied together. There were many cases of $2 \times 1 = 3$

In part (b) candidates were expected to find a suitable common denominator (invariably 15 for those who knew what to do). There were a surprising number of candidates who subtracted numerators and denominators to get, for example, $\frac{42}{14}$ or who found the correct common denominator but did not change the numerators. A small number of candidates added instead of subtracted – they lost the accuracy mark.

Q4. In part (a) the majority of students were able to convert at least one of the given fractions to an improper fraction. Some students confused techniques for other operations at this point and tried to express the fractions with a common denominator. Those that were successful in achieving the correct multiplication were often unable to convert back to a mixed fraction in its simplest form. The most common answers were $15\frac{42}{14}$, $\frac{14}{5}$ or $\frac{212}{15}$

In part (b) students generally scored full marks or no marks. Many who converted to improper fractions were unable to convert these to fractions with the same common denominator. Often they found the common denominator but failed to find the correct numerator. Very few subtracted the whole numbers and then dealt with the fractions. There appears to be widespread misunderstanding of the processes involved.

Q5. Students found more success with this question, the main inhibitor being a failure to write down all the steps and working needed to 'show that' 1335 was the resulting number. There were some 2-way tables used, but students did not know what to do with such a diagram, once complete.

Q6. This question targeted a new area of the specification and it was pleasing to see the majority of students scored at least one mark on this question. Many students obtained one mark for $215 \div 17 = 12.647\ldots$ and some went on to correctly indicate that it is not possible to have 0.647... of a rose tree or that the answer was not an integer when an integer would be required. An alternative method seen was to show $12 \times 17 (= 204)$ and $13 \times 17 (= 221)$ and an explanation that there could not be a number of trees between 12 and 13.

The main errors seen in this question, were to show a correct calculation with no interpretation scoring one mark, or to show $17 \times 17 = 289$, which has no meaning in this question or to give a vague reason e.g. '215 can't be divided by 17' the latter two do not score any marks.

Q7. This was successfully completed by most candidates. For the rest the first problem was to decide the number of packages and parcels; those misinterpreting the ratio frequently gave incorrect answers of

Some ideas...



Calculate 57×12

	Small	Medium	Large	Total
Pine	7			23
Oak		16		34
Yew	3	8	2	13
Total	20		14	

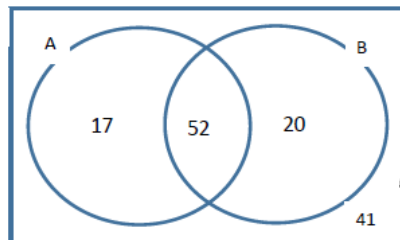
A factory makes three sizes of bookcase. The sizes are small, medium and large. Each bookcase can be made from pine or oak or yew. The two-way table shows some information about the number of bookcases the factory makes in one week. Complete the table.

Calculate
 $1,127 - 898$

List the first 5 prime numbers

80 children went on a school trip. They went to London or to York. 23 boys and 19 girls went to London. 14 boys went to York. Draw a frequency tree to represent this information

Calculate $\frac{2}{5}$ of 60



Students were asked if they liked apples of bananas.
a) How many students were asked?
b) How many like apples?

Quality starters

One Marker Starters



Pearson

1 Find the square root of 64
8

2 Write 7.26451 correct to 3 decimal places
7.265

3 Simplify $7 \times e \times f \times 8$
56ef

4 Write $\frac{4}{5}$ as a percentage
80%

5 Write 20% as a fraction
 $\frac{20}{100}$
or equivalent

6 Here are four digits:
5 6 1 9
Write down the smallest possible two digit number that can be made with two of the digits
15

7 Work out $120 - 89$
31

8 Write down a multiple of 6 that is between 40 and 50
42 or 48

9 Write in order of size. Start with the smallest number
0.078 0.78 0.87 0.708
0.078 0.708 0.78 0.87

10 Change 4560 g into kg
4.56 kg

One Marker Starters



Includes Summer 2017 - Summer 2024 Exam Papers

(Unless otherwise stated)

Pearson

1 Find the square root of 64

2 Write 7.26451 correct to 3 decimal places

3 Simplify $7 \times e \times f \times 8$

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9 Write in order of size. Start with the smallest number
0.078 0.78 0.87 0.708

10 Change 4560 g into kg

Some ideas...

Spice things up!

START →

5 tins of soup have a total weight of 2000 grams. 4 tins of soup and 3 packets of soup have a total weight of 1705 grams. Work out the total weight of 3 tins of soup and 2 packets of soup.

Tom buys boxes of coloured pens. There are 9 red pens in each box of red pens. There are 12 blue pens in each box of blue pens. There are 4 green pens in each box of green pens. Tom buys equal numbers of red, blue and green pens. How many boxes of each colour did Tom buy?

The area of the rectangle is 6 times the area of the triangle. Work out the width of the rectangle.

A PC costs £600. It depreciates at 10% per annum. How much is it worth at the end of 2 years?

Solve $2x + 3 = 10$

Write 230 as a product of its prime factors

Share £96 in the ratio 2:4

Write 8.23456 correct to 3 decimal places.

A number 3.7 is rounded to 1 decimal place. What is the error interval?

94 children went on a school trip. They went to London or to Manchester. 20 boys and 19 girls went to London. 16 boys went to Manchester. Draw a frequency tree to represent this information

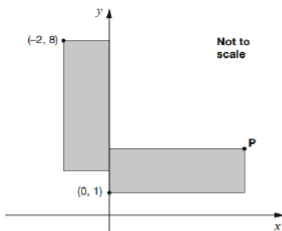

ONE-WEEK HOLIDAY CHALLENGE (F)

HOW MANY CAN YOU DO? ... HOW MANY WILL YOU DO?

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
CALCULATE $80 + 1000$	A square has a perimeter of 36cm, what is its area?	$\frac{2}{5}$ of a number is 8. What is the number?	Calculate: $\frac{1}{2} + 0.35$	What is 25% of 16?	Round 1787 to the nearest a) ten b) hundred c) thousand	What number is halfway between -19 and -1?
Calculate 6^2	What is ? $\frac{1}{1} \times 52$	How many years is 64 months?	WHAT IS: $806 + 2597$?	What factors are shared by the numbers 18 and 20?	How MANY 20 pence pieces are there in £7.40?	Put these numbers into SIZE ORDER . Start with the smallest 4.07 4.7 4.711 4.17 4.71
What is $1.28 \text{ kg} + 542 \text{ g}$?	WHAT is $360 \div 1$?	Calculate: $\frac{3}{4} + \frac{3}{4}$	Work out $0.15 \div 10$	What is ? $\frac{5}{7} \times \frac{4}{5}$	What is $\frac{3}{4}$ written as a DECIMAL ?	A film finished at 20:38 and was 94 minutes long. What time did the film start ?
Work out: 80×40	What is $56 \div 7$?	Calculate $502 - 89$	What is ? $663 - 87$	What number is five times greater than one hundred and eleven?	What is : $27.04 + 6.77$	What is 11×32 ?
What number is five times greater than one hundred and eleven?	What is : $27.04 + 6.77$	What is 11×32 ?	60 x 6 IS THE SAME AS 10 x			

MAY/JUNE

MISH MASH 1

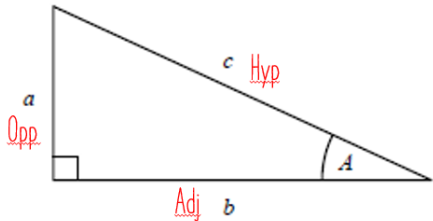
These two rectangles are identical. The length of each rectangle is three times its width. What are the coordinates of P?			Expand $4y(y + 2)$	$3\frac{2}{3} - 2\frac{1}{4}$												
			List the first three multiples of 16	Simplify $x^2 \times x^5$												
			Write down the ratio of 1.2 kg to 400g Give your answer in its simplest form	What is the mathematical name of this shape? 												
Factorise $5x^2y + 10x$	Simplify $x^2 \div x^5$		$\frac{3}{5} \div \frac{1}{4}$	Put in size order, smallest first 7 -7 -10 2 0												
What is 0.37 as a percentage?	Here is a two-stage number machine. It multiplies by 4 and then subtracts 3 <div>Input → <div>$\times 4$</div> → <div>$- 3$</div> → Output</div>		Round 27 789 to the nearest 100													
A number, x, is rounded to 1 decimal place to 6.7 What is the error interval?	Complete the table <table><thead><tr><th>Input</th><th>Output</th></tr></thead><tbody><tr><td>1</td><td></td></tr><tr><td>2</td><td>5</td></tr><tr><td>5</td><td>17</td></tr><tr><td>7</td><td></td></tr><tr><td></td><td>42</td></tr></tbody></table>		Input	Output	1		2	5	5	17	7			42	Put in size order, smallest first $\frac{3}{5}$ $\frac{7}{15}$ $\frac{3}{4}$ $\frac{16}{30}$	
Input	Output															
1																
2	5															
5	17															
7																
	42															

Some ideas...

Exam Aid Training

Tick or Trash

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:

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

$$\sin A = \frac{\text{Opp}}{\text{Hyp}} \quad \cos A = \frac{\text{Adj}}{\text{Hyp}} \quad \tan A = \frac{\text{Opp}}{\text{Adj}}$$

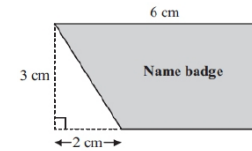
You may be able to use what is on the formula sheet to remind yourself about SOH CAH TOA

Using the Formula Sheet (Foundation Tier)

Janice cuts a triangle from a rectangular piece of metal. She uses the rest of the metal to make a name badge.

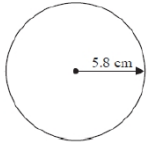
The rectangle has length 6 cm and width 3 cm. The right-angled triangle has base 2 cm and height 3 cm.

Work out the area of the name badge.



This circle has a radius of 5.8 cm.

Work out the area of the circle. Give your answer to 1 decimal place.

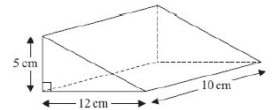


A circle has a diameter of 140 cm.

Work out the circumference of the circle.

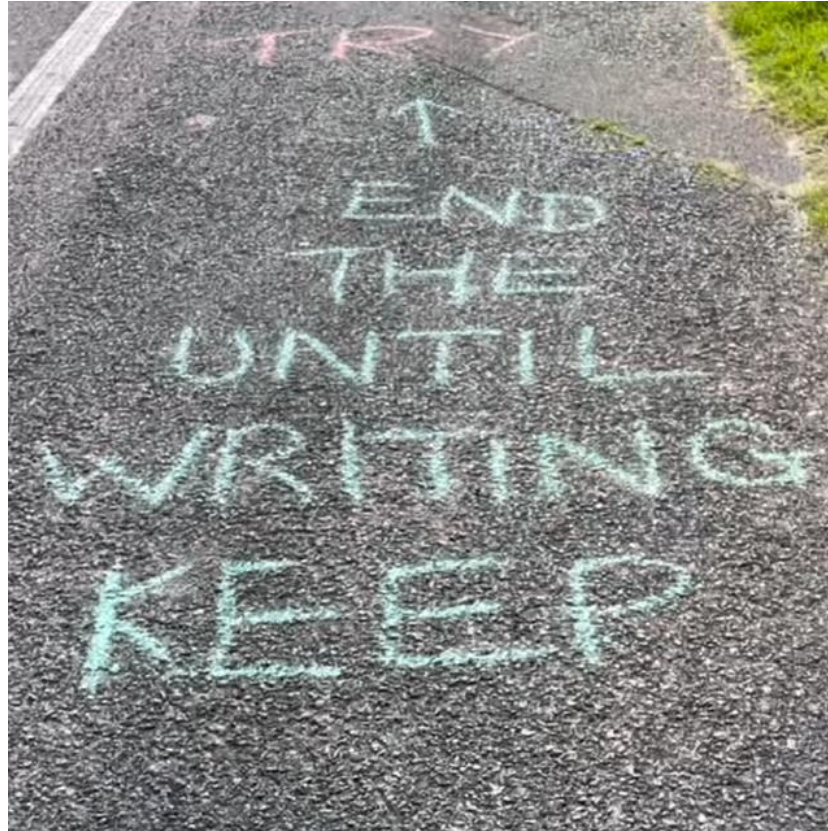
Give your answer correct to 3 significant figures.

Work out the volume of the triangular prism.



Some ideas...

On the day...



Some ideas...

Crossover, Crossover, Crossover!

JustMaths GCSE Mathematics Scheme of Work Crossover (2021)

JM Clip No.	Topic	JM Clip No.	Topic
01	Two Way Tables	40 - 45	Pythagoras
02	Frequency Trees		Trig - Finding Sides
03	Rounding and Error Intervals		Trig - Finding Angles
04	Estimation		Trig - Non Calculator
05	Use of Calculator		Pythagoras with Trig
06 / 07	Product of Primes/HCF/LCM	46 - 48	Circles
08	Real-life Multiples		Arcs and Sectors
09 / 10	Fractions	49 / 50	Surface Area and Volume
11 / 12	Ratio	51	Sampling
13	Direct Proportion	52	Averages
	Proportion - Best Value		Averages from a Table
14 15 16	Proportion - Recipes	53 / 54	Averages from Grouped Data
	Proportion - Exchange Rates	55	Frequency Diagrams
17	Inverse Proportion	56	Scatter Graphs
18 / 19	Percentages	57	Time Series
20 / 21	Interest and Growth	58	Pie Charts
	Depreciation and Decay	59 / 60	Coordinate Geometry
22	Reverse Percentages	61	Straight Line Graphs
23	Index Laws	62	Non-linear Graphs
24	Expand and Simplify	63 / 64	Speed, Distance, Time
25	Sequences		Compound Measures
26	Inequalities	65	Real Life Graphs
27	Solving equations		Congruence
28 / 29	Forming and Solving Equations	66 / 67	Similar Shapes
30 / 31	Factorising		Reflections
32	Subject of		Rotations
33 / 34	Standard Index Form	68 - 72	Translations
35	Alternate/Corresponding Angles		Enlargements
36	Interior and Exterior Angles		Combined Transformations
37	Plans and Elevations	73	Vectors
38	Constructions	74	Probability from a Table
39	Bearings	75 / 76	Probability Trees
		77	Venn Diagrams
		78 / 79	Simultaneous Equations

Adapted by JustMaths from the Pearson/Edexcel 9-1 Scheme of Work to support the JustMaths Crossover (2021)

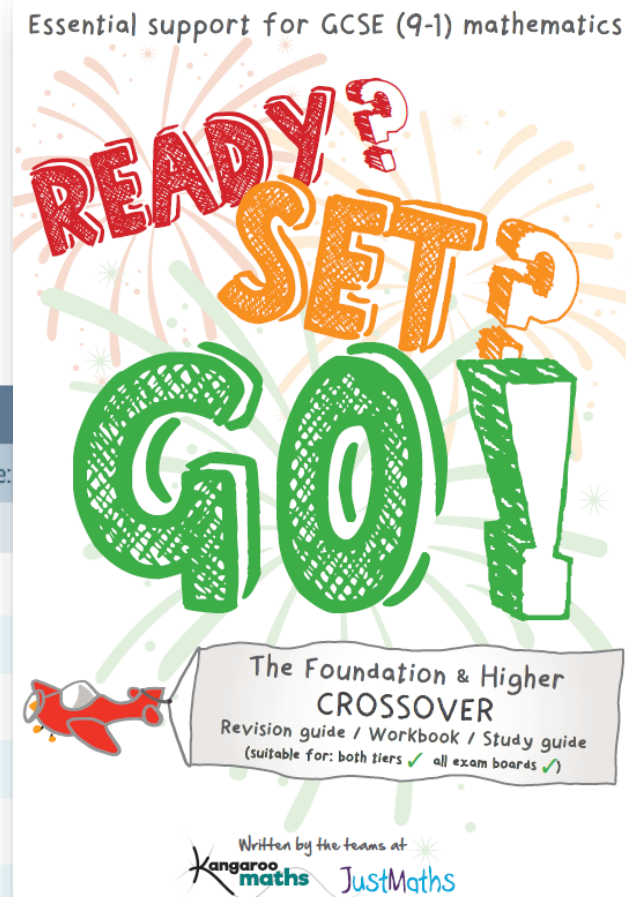
Questions

This cohort's best 10 questions in relation to the Edexcel average were:

Question

Q23a (Paper 3F - CALCULATOR (F))	Trigonometry
Q26 (Paper 1F - NON CALCULATOR (F))	Vectors
Q26 (Paper 3F - CALCULATOR (F))	Angles in polygons
Q14a (Paper 3F - CALCULATOR (F))	Stem and Leaf!!!!
Q18a (Paper 1F - NON CALCULATOR (F))	Set notation
Q12 (Paper 2F - CALCULATOR (F))	Pie Charts
Q24b (Paper 2F - CALCULATOR (F))	Quadratic graphs
Q16c (Paper 1F - NON CALCULATOR (F))	Solving equations
Q27b (Paper 3F - CALCULATOR (F))	Similar shapes
Q15a (Paper 2F - CALCULATOR (F))	Angle facts

We have had huge success with sharing this language and content with the students



1.12/2

1.64/2

0.88/2

0.6/1

Know the papers inside out!

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Write 478 to the nearest hundred.

.....

(Total for Question 1 is 1 mark)

2 Write down a multiple of 8 that is between 41 and 60

.....

(Total for Question 2 is 1 mark)

3 Change 1.5 kilometres to metres.

..... metres

(Total for Question 3 is 1 mark)

4 Here is a list of numbers.

4 6 9 10 15 27 30 40

From the list, write down all the numbers that are powers of 3

.....

(Total for Question 4 is 1 mark)

5 Write 19% as a fraction.

.....

(Total for Question 5 is 1 mark)

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 There are only blue cubes, red cubes and yellow cubes in a box.

The table shows the probability of taking at random a blue cube from the box.

Colour	blue	red	yellow
Probability	0.2		

The number of red cubes in the box is the same as the number of yellow cubes in the box.

(a) Complete the table.

(2)

There are 12 blue cubes in the box.

(b) Work out the total number of cubes in the box.

(2)

(Total for Question 1 is 4 marks)

Know the mark schemes too!

Nov 23 H P3 Q4b F P2 Q23b

(b) Work out the greatest integer that satisfies the inequality

$$5y - 7 < 16$$

$$\begin{aligned} 5y - 7 &= 16 \\ +7 & \quad +7 \\ 5y &= 23 \\ \div 5 & \quad \div 5 \\ y &= 4.6 \end{aligned}$$

MO

1.8

Incorrect first step.

Just writing + 7 is not enough.
It must be correctly evaluated too.

so MOA0

(Total for Question 11 is 4 marks)

11 At the end of October, Fiona's electricity meter reads 88738 kWh.
At the end of November, her electricity meter reads 89198 kWh.

Each kWh of electricity Fiona uses costs 16p.

Work out how much Fiona had to pay for the electricity she used in November.

Handwritten work shows calculations for the difference in electricity usage (89198 - 88738 = 460 kWh) and the cost (460 × 16p = 7360p = £73.60). The candidate has circled the difference 460.

(Total for Question 11 is 4 marks)

Question 11 was awarded 0 marks.

The markscheme shows: M1 for 89198 - 88738 (=460) and the candidate has clearly shown this and circled it so this question should have been awarded 1 and not 0.

Answer	Mark	Mark scheme	Additional guidance
4	M1	for a correct first step, eg for adding 7 to both sides $5y - 7 + 7 < 16 + 7$ or for dividing throughout by 5 eg $\frac{5y - 7}{5} < \frac{16}{5}$ or for showing 4.6 (oe) as the critical value or for $5 \times 4 - 7$ with 13 seen as answer	Allow use of any inequality or as an equation for the first mark Award 1 mark for 4.6 oe, eg $y = \frac{23}{5}$ or $y < 4.6$
	A1	for 4 or $y = 4$ with no incorrect working	An answer of 4 from incorrect working can score 1 mark at most.

Ask us about the timeline to help over 3 years, not just 13 weeks!

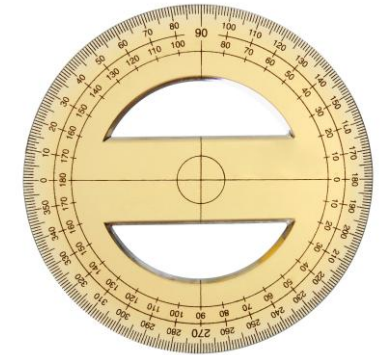
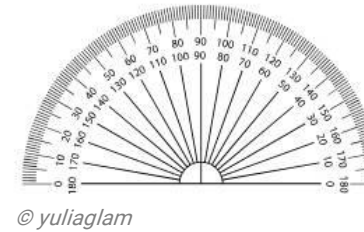
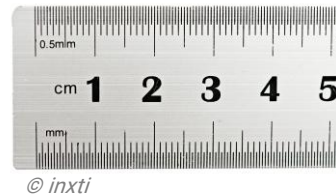
	YEAR 9	YEAR 10	YEAR 11
Half Term 1		Baseline assessment P1 (1 x non calc) Have groups as close to tiering 'ideal' as possible. Analyse performance on Crossover Questions (Crossover Papers available on Emporium) Share 'Re-Ordered Papers' in class if available	Baseline assessment P1 (1 x non calc) <i>(Final call for any students to start higher)</i> Intervention/support starts and shared with parents: <ul style="list-style-type: none"> - After school revision - Tutor time maths ('Aiming for papers') - Plan for half term sessions/Saturday schools
OCTOBER HALF TERM			
Half Term 2		Internal Assessment P2 (following from Baseline)	Full mocks 1 (Use P1, P3 as P2 and P3(2) a 'Shadow Paper')
CHRISTMAS			
Half Term 3	Start to build in '1 Marker Starters' over year 9		<i>Final call for any student to join foundation</i> Ideally tiering sorted 'Final countdown' support shared with parents
FEBRUARY HALF TERM			
Half Term 4		Internal Assessment P3 (completing the suite of papers and 'rough' grades can be created)	Possible final tier changes (based on attendance etc.) Full mocks 2 (Use P1, P3 as P2 and P3(2) a 'Shadow Paper') Rough final deadline for exam entries/ammendments
EASTER			
Half Term 5	Conclude KS3 Content		Final Paper 1
MAY HALF TERM			
Half Term 6	Expose to Full GCSE Paper in EoY assessments 1 x foundation non calc (Possibly HA students try higher)	Full set of 3 papers if possible on the 'ideal' tier for EoY assessments Use P1, P3 as P2 and P3(2) a 'Shadow Paper' Groups ready for Sep (ideally final set changes now) Communicate to parents: Tiering for Sep, QLAs from EoY assessments, 'Practice Sets' and 'Themed Papers' for over summer	Final Paper 2 and 3 All starts again!
SUMMER			
Script Viewer and ResultsPlus at the ready! Resources on Pearson Emporium			

Some go-tos – the power of video!



Video title	Video link	Notes
Johnny Ball estimates the number of black cabs in London – Bang Goes the Theory – BBC	https://www.youtube.com/watch?v=tyX79mPm2xY	
Powers of Ten™ (1977) – Eames Office	https://www.youtube.com/watch?v=0fKBhvDjuy0	Key for maths and science (a little old now though!)
Circumference is pi times diameter song	https://www.youtube.com/watch?v=Opi5EaucFik	A catchy song to help you remember the area and circumference of circles.
Area of a Trapezium – Pop Goes The Weasel	https://www.youtube.com/watch?v=qlxawNewXiY	

Equipment



Questions to ask yourself...

- What calculator do they own/use in class/have in school/use in exams? Are they the same model?
- What type of protractor do they prefer/use in class/exams... half or full circle?
- Do their rulers have cm and mm (are they transparent?)? 30cm or 15cm?
- Can they use a pair of compasses (are they trained on how to use?)?
- 2025? Are they trained how to use the formula sheet/exam aid?



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 \times length

Where r is the radius and d is the diameter:

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

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

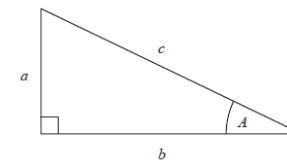
Quadratic formula

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

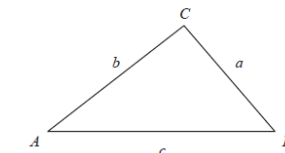


In any right-angled triangle where a , b and c are the length of the sides and c is the hypotenuse:

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

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

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



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

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

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

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

Compound Interest

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:

$$\text{Total accrued} = P \left(1 + \frac{r}{100} \right)^n$$

Probability

Where $P(A)$ is the probability of outcome A and $P(B)$ is the probability of outcome B :

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

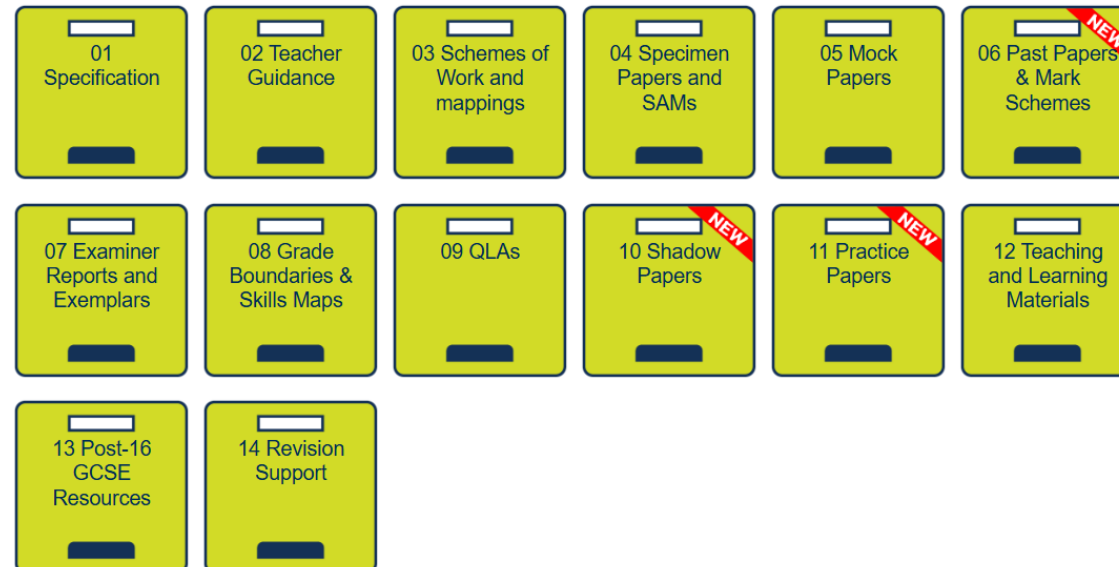
$$P(A \text{ and } B) = P(A \text{ given } B) P(B)$$

Support from Pearson



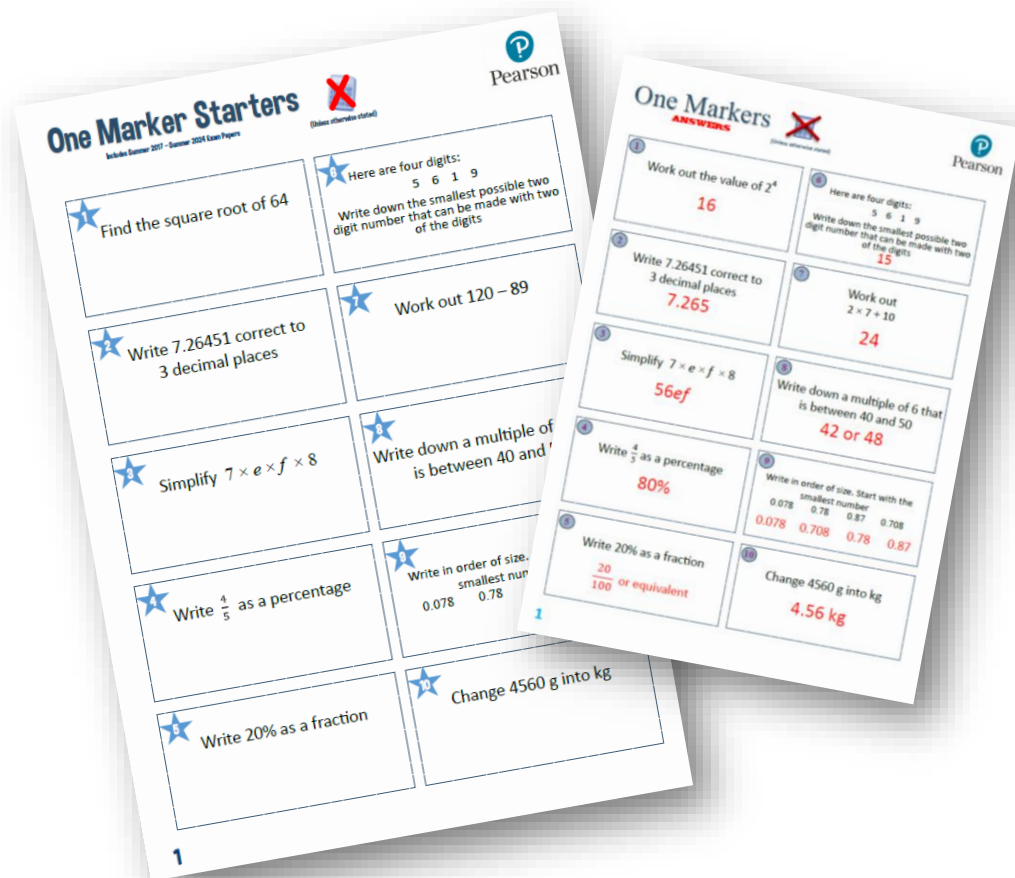
Unmatched Post Exam Support

- GCSE Mathematics Exam Insights (online Network)
- GCSE Marking Guidance (online network)
- Shadow Papers
- Cross over papers
- Reordered papers
- Aiming for papers
- Skills maps (Enhanced)
- QLA (Enhanced)
- Exemplars

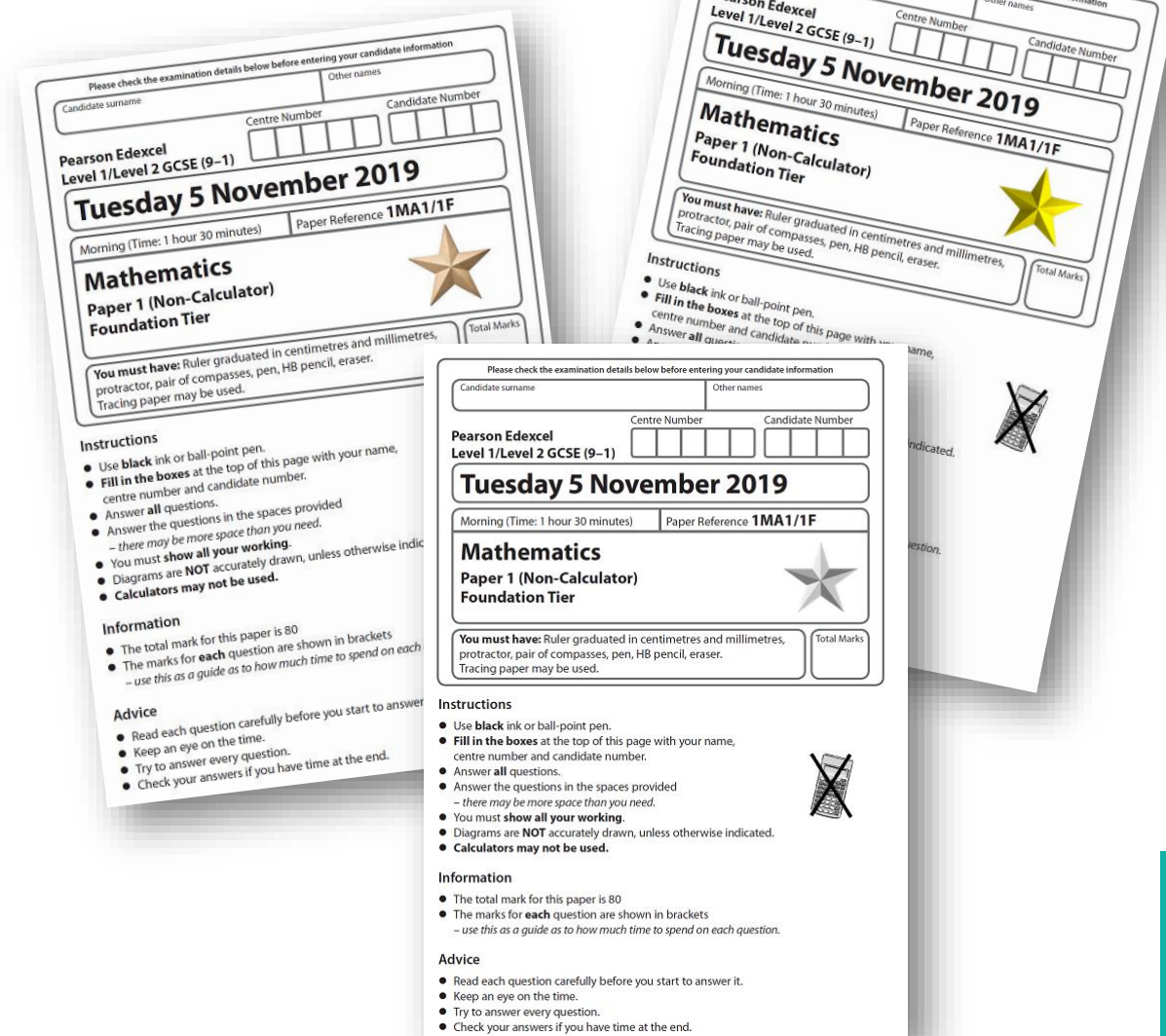


Amazing *Emporium*

Bronze Silver Gold Papers



One marker starters



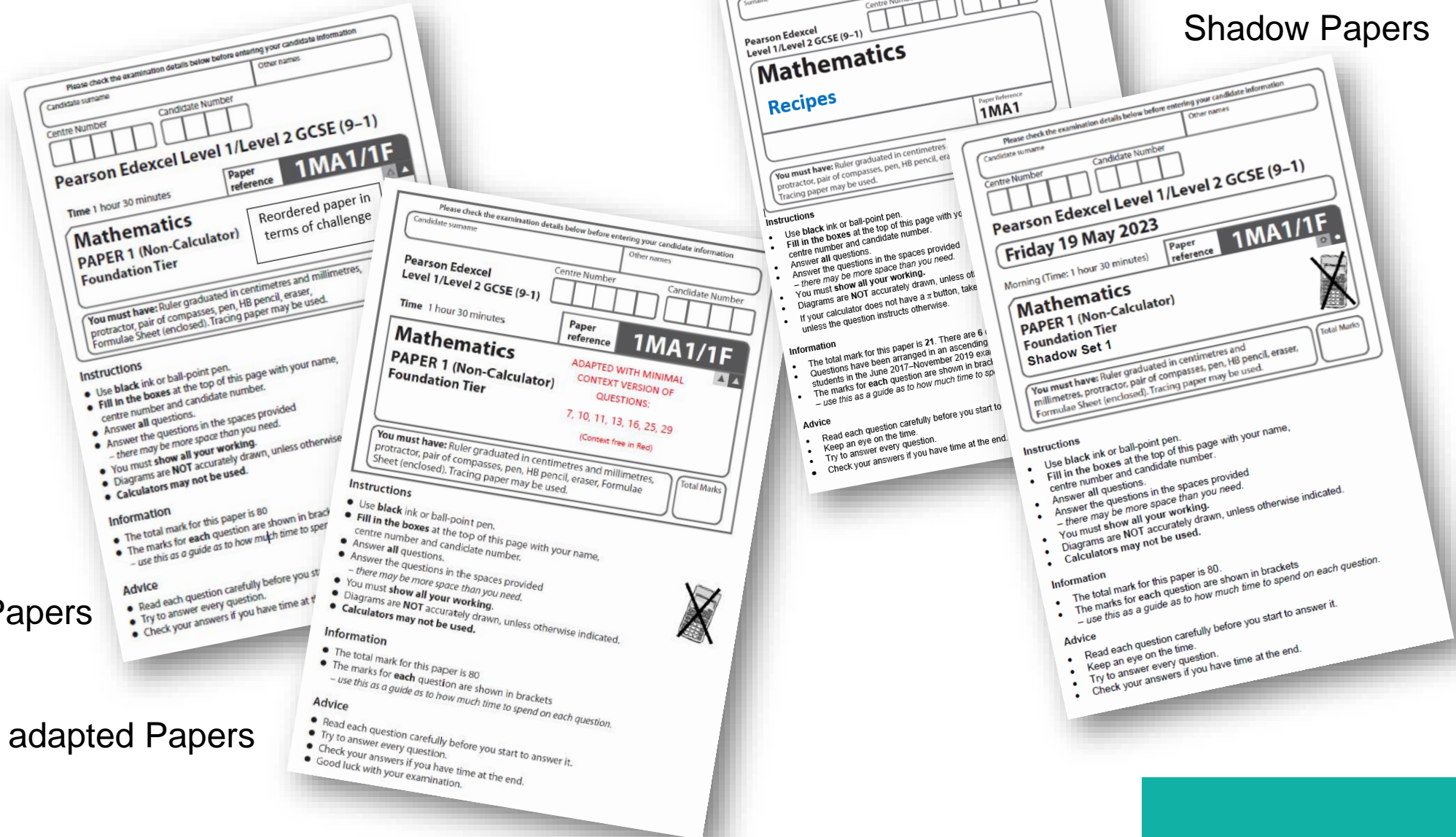
Amazing *Emporium*

Themed Papers

Shadow Papers

Reordered Papers

Context adapted Papers



Amazing *Emporium*

Aiming 4 Papers

Pearson Edexcel
Level 1/Level 2 GCSE (9-1)
Mathematics
Paper 1 (Non-Calculator)
Aiming for Grade 3
Spring 2023 Practice Paper
31 marks 30 minutes

Write your name here
Surname
Other names
Centre Number
Candidate Number

Foundation Tier
Paper Reference
1MA1/1F

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

Instructions

- Use black ink or ball-point pen.
- Fill in the boxes at the top of this page with your name, centre number and candidate number.
- Answer all questions.
- Answer the questions in the spaces provided – there may be more space than you need.
- You must show all your working.
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- Calculators may not be used.

Information

- The total mark for this paper is 31. There are 12 questions.
- This paper assumes students have worked through the "Aiming for Grade 1 and Grade 2 papers" and as a result may have already seen a small number of these questions.
- All the questions are placed in ascending order of mean difficulty as found by students achieving Grade 3 in the Summer and November 2022 examinations.
- The marks for each question are shown in brackets – use this as a guide as to how much time to spend on each question.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

1MA1 – Aiming for Grade 3 1F

Qn	Skill tested	Mean score	Max score	Mean %	ALL	5	4	3	2	1	U
1	Approximation and estimation	1.20	2	60	1.20	1.89	1.74	1.36	0.73	0.22	0.07
2	Fractions, percentages in context	2.44	4	61	2.44	3.74	3.33	2.63	1.57	0.90	0.79
3a	Fraction addition	1.22	2	61	1.22	1.92	1.73	1.31	0.80	0.35	0.11
3b	Fraction multiplication	1.06	2	53	1.06	1.72	1.40	1.02	0.72	0.54	0.40
4	Speed, distance, time	1.02	2	51	1.02	1.83	1.31	1.12	0.82	0.52	0.52
5	Solve linear equations	0.98	2	49	0.98	1.66	1.33	1.09	0.65	0.42	0.43
6	Bar charts & ratio	0.96	2	48	0.96	1.79	1.48	1.02	0.67	0.46	0.40
7	Product of prime factors	1.38	3	46	1.38	2.48	1.95	1.45	0.89	0.13	0.03
8	Product of prime factors	1.48	2	74	1.48	1.90	1.76	1.56	1.21	0.83	0.31
9a	Probability from a table	0.89	2	45	0.89	1.80	1.40	0.95	0.41	0.26	0.60
9b	Ratio in real context	0.43	1	43	0.43	0.69	0.58	0.45	0.29	0.20	0.25
9c	Apply four operations	0.45	1	45	0.45	0.73	0.62	0.47	0.29	0.21	0.17
10	Transformations	0.83	2	42	0.83	1.69	1.20	0.86	0.52	0.26	0.21
11	Pressure	0.75	2	38	0.75	1.49	0.99	0.77	0.56	0.37	0.21
12	Multiplying decimals	16.15	31.00	52.10	16.15	27.06	22.22	17.04	10.59	6.15	4.72

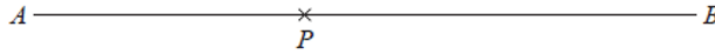
Suggested grade boundaries

Grade	5	4	3	2	1
Mark	24	19	14	8	5

Amazing *Emporium*

Re-Ordered Papers

- 20 The point P lies on the line AB .
Use ruler and compasses to construct an angle of 90° at P .
You must show all your construction lines.



(Total for Question 20 is 2 marks, the mean score was 0.66 marks)

- 21 Work out an estimate for $\frac{5.7 \times 8.2}{0.26}$

.....

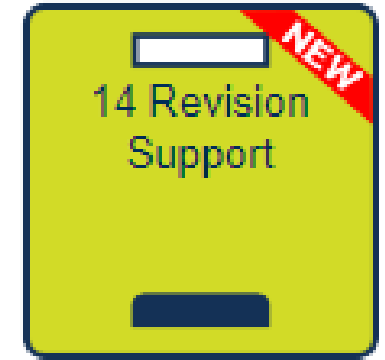
(Total for Question 21 is 3 marks, the mean score was 0.92 marks)

Full marks scored up to this point would be enough to achieve a nominal Grade 5 on this paper

- 22 A piece of glass has a mass of 27 g and a volume of 10 cm^3

New and Updated Revision Programmes

The foundation six-week revision programme has been updated in September 2024 to include questions from Summer and November 2023 exams. This six-week revision programme has been designed for students aiming for a grade 4.

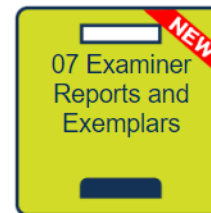


We have also now released two *brand new* higher 6-week revision programmes, one aimed at students aiming for grades 4 to 6 and one for students aiming for grades 7 to 9.

These programmes include 6 weekly task booklets (mark schemes included or separate), teacher and student guidance and a ready-made tracker so you can keep track of how your students are doing. They make use of Pearson's resources in a structured manner whilst supporting students by providing information about both their strengths and weaknesses.

You can find these programmes on the Maths Emporium in the [Revision Support](#) resources cabinet.

New Exemplars for GCSE Maths



For the 2024 exam series (Summer and November) we have produced our exemplars in a new PowerPoint format.

These are ready made slide decks with marking guidance on selected questions from the exam series. They use real candidate responses and have been annotated by the chair of examiners.

These have been designed for teachers to use for CPD but could also be used with students in the classroom.

3/4

Question 25 – Response A

25 Andy, Luke and Tina share some sweets in the ratio 1:6:14

Tina gives $\frac{3}{7}$ of her sweets to Andy.

Tina then gives $12\frac{1}{2}\%$ of the rest of her sweets to Luke.

Tina says,

“Now all three of us have the same number of sweets.”

Is Tina correct?
You must show how you get your answer.

Handwritten response:

$A = 31.5$
 $L = 27$
 $T = 63$

$27 + 4.5 = 31.5$

$35 - 4.5 = 30.5$

$4.5 + 27 = 31.5$

$100\% = 35$
 $10\% = 3.5$
 $1\% = 0.35$
 $2\% = 0.7$

$63 \div 7 = 9 \times 3 = 27$

$63 - 27 = 36$

$36 - 4.5 = 31.5$

3.50
 0.72
 $0.5\% = 0.18$
 4.5%

$12.5\% = 4.5$

Annotations:

- C0** (Not supported by correct figures due to the initial arithmetic error.)
- P1** (Clearly shown process of $100/21$ to find one share but there is an arithmetic error, it should be 4.76. Then correctly finds $3/7$ of 63 = 27 as number given to Andy. The value 63 is Tina's 14×4.5 .)
- P1** (Subtracts this value from Tina's share and finds 12.5% of the remainder and adds to Luke.)
- P1** (Finds all the final amounts for the three people.)

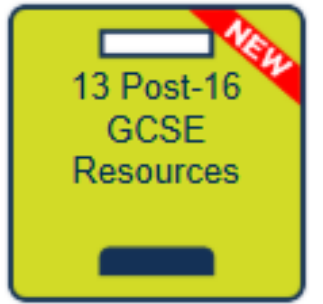
(Total for Question 25 is 4 marks)

Note: Students are allowed to choose a number for the total sweets they may have. Hopefully, it is a multiple of 21. If not, then you can allow decimal answers, rounded or truncated to 2 decimal places.

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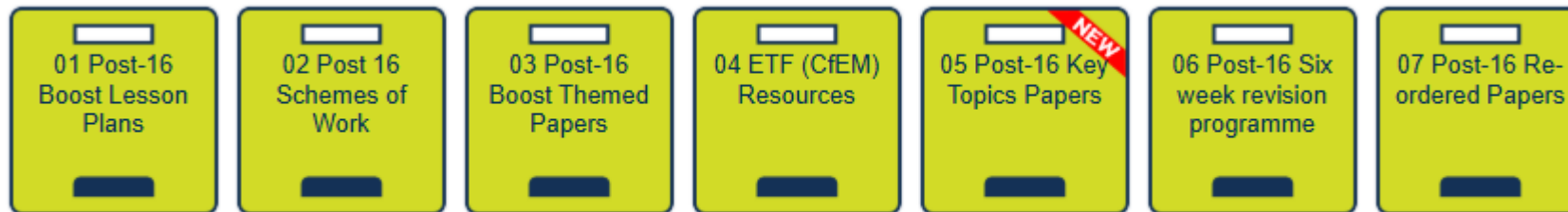
62

Post-16 Resources



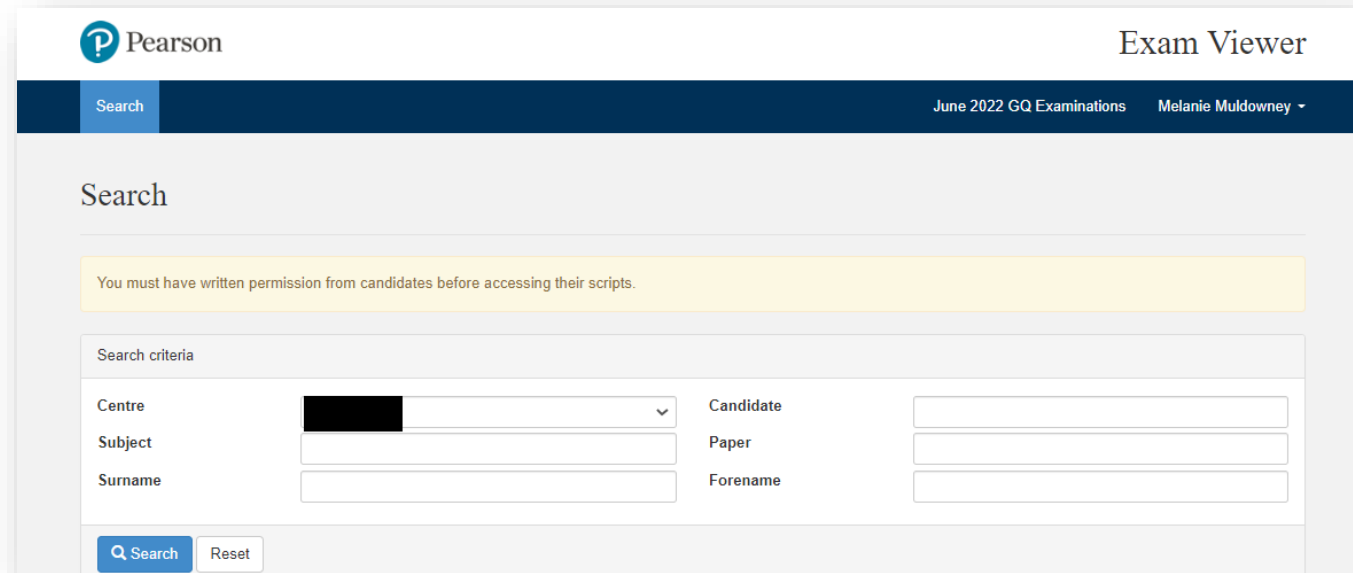
In the dedicated folder for post-16 resources for GCSE Maths we have

- Post-16 Boost Themed papers (e.g. Catering, Engineering, Health and Social Care)
- Resources from the ETF (CfEM) – includes FE master handbook, schemes of work and lesson plans (with resources)
- Post-16 Key Topic Papers – includes *new* topic themed papers and live series papers
- Six-week revision programme (as mentioned on the previous slide)
- *New* reordered papers using post-16 data.



Access to Scripts

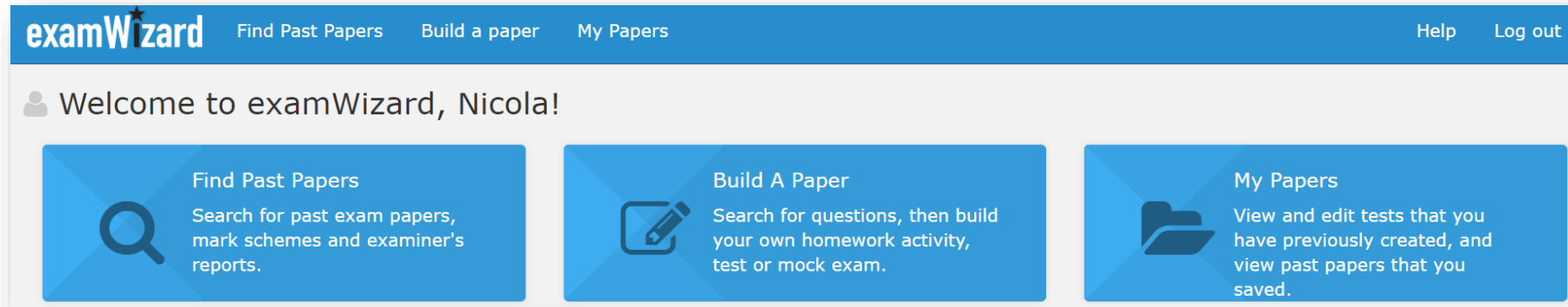
- Access to scripts is a **free** service that allows you to look at a students examination papers question by question.
- A powerful CPD tool to share good practice.
- Reduces the uncertainty when requesting a remark.



The screenshot shows the Pearson Exam Viewer interface. At the top, the Pearson logo is on the left and 'Exam Viewer' is on the right. Below this is a dark blue navigation bar with a 'Search' tab on the left and 'June 2022 GQ Examinations' and 'Melanie Muldowney' on the right. The main content area is titled 'Search' and contains a yellow warning box stating: 'You must have written permission from candidates before accessing their scripts.' Below the warning box is a 'Search criteria' section with two columns of input fields. The left column has 'Centre' (a dropdown menu with a blacked-out selection), 'Subject' (a text input field), and 'Surname' (a text input field). The right column has 'Candidate' (a text input field), 'Paper' (a text input field), and 'Forename' (a text input field). At the bottom of the search criteria section are two buttons: a blue 'Search' button with a magnifying glass icon and a white 'Reset' button.

Exam Wizard

- Exam Wizard is a free resource that allows you to find past examination questions to make your own bespoke papers.
- To access Exam Wizard you will need an EOL username and password – your Exams Officer will be able to issue this.
- Exam wizard is an online application that can be accessed [here](#).



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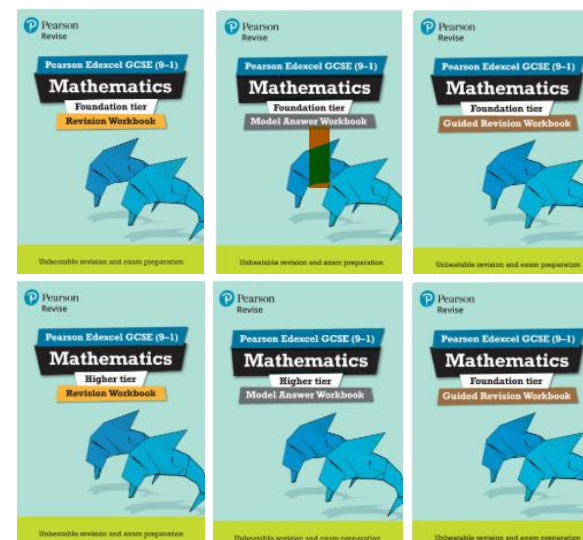


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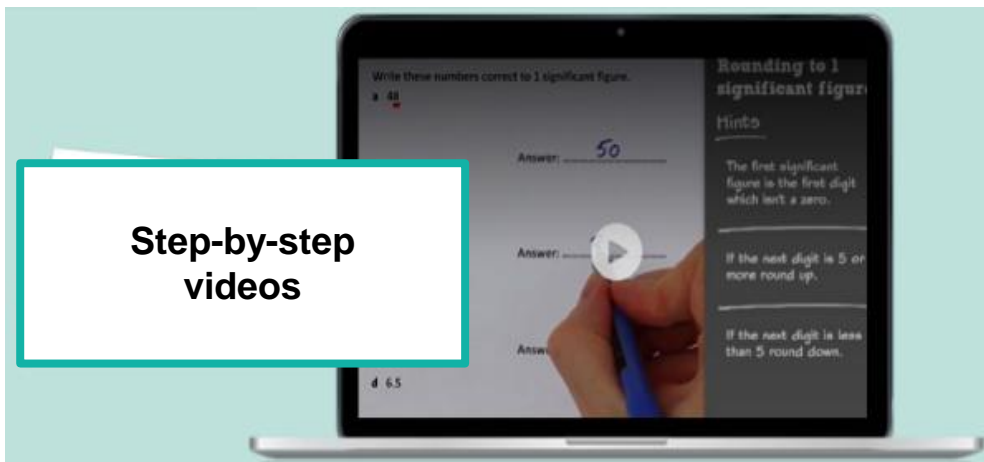
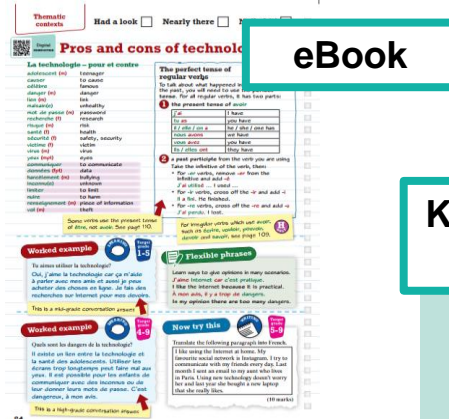
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Our subject specialists

- Our team of credible specialists is made up of current classroom practitioners that share their knowledge with our schools through centre visits, online training and networks.



Contact us

Mel Muldowney
mel@justmaths.co.uk

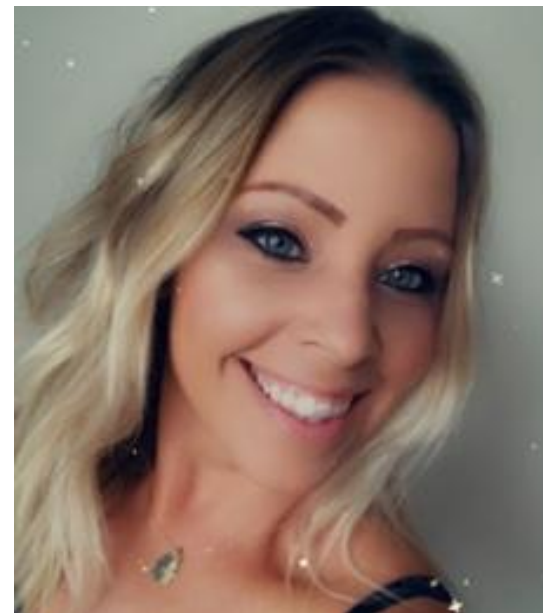
Christian Seager
christian@justmaths.co.uk

Meet your Maths and Statistics Subject Advisor and Partner



Vicky Wood

Vicky works closely with the wider maths team to support teachers in UK centres in delivering Pearson Edexcel qualifications in Mathematics and Statistics teachingmaths@pearson.com
[Sign up for Vicky's monthly updates](#)



Nicola Woodford-Smith

Nicola works as the maths Subject Partner in the maths team at Pearson Edexcel. She helps to create resources and delivers CPD to support you and your team through the lifecycle of our qualifications.

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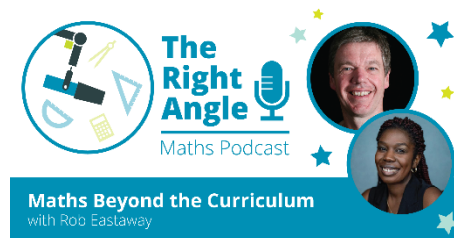


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NEW Podcast: The Right Angle



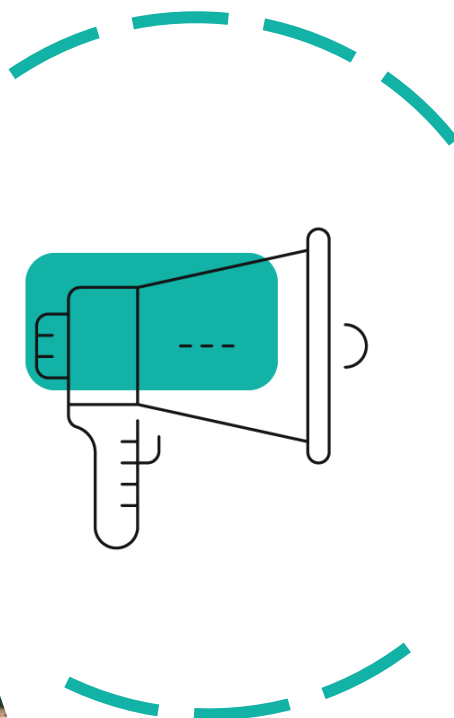
The Right Angle invites topical discussions, debates and insights from a range of thought leaders, award-winning maths educators and facilitators. Our subject partner hosts, Mark Heslop and Nicola Woodford-Smith lead conversations on themes such as the evolution of technology to support learning, student engagement and diversity and inclusion across the education of mathematics. Listen and subscribe for FREE on Apple Podcasts, Spotify and on SoundCloud.



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Your Feedback Matters

Following this event, you will receive an invitation to share your thoughts about the session. Your feedback is invaluable to us, as it helps us tailor our professional development materials to better meet your needs. Please don't hesitate to let us know what you'd like to see more of and what areas you think could be improved.



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