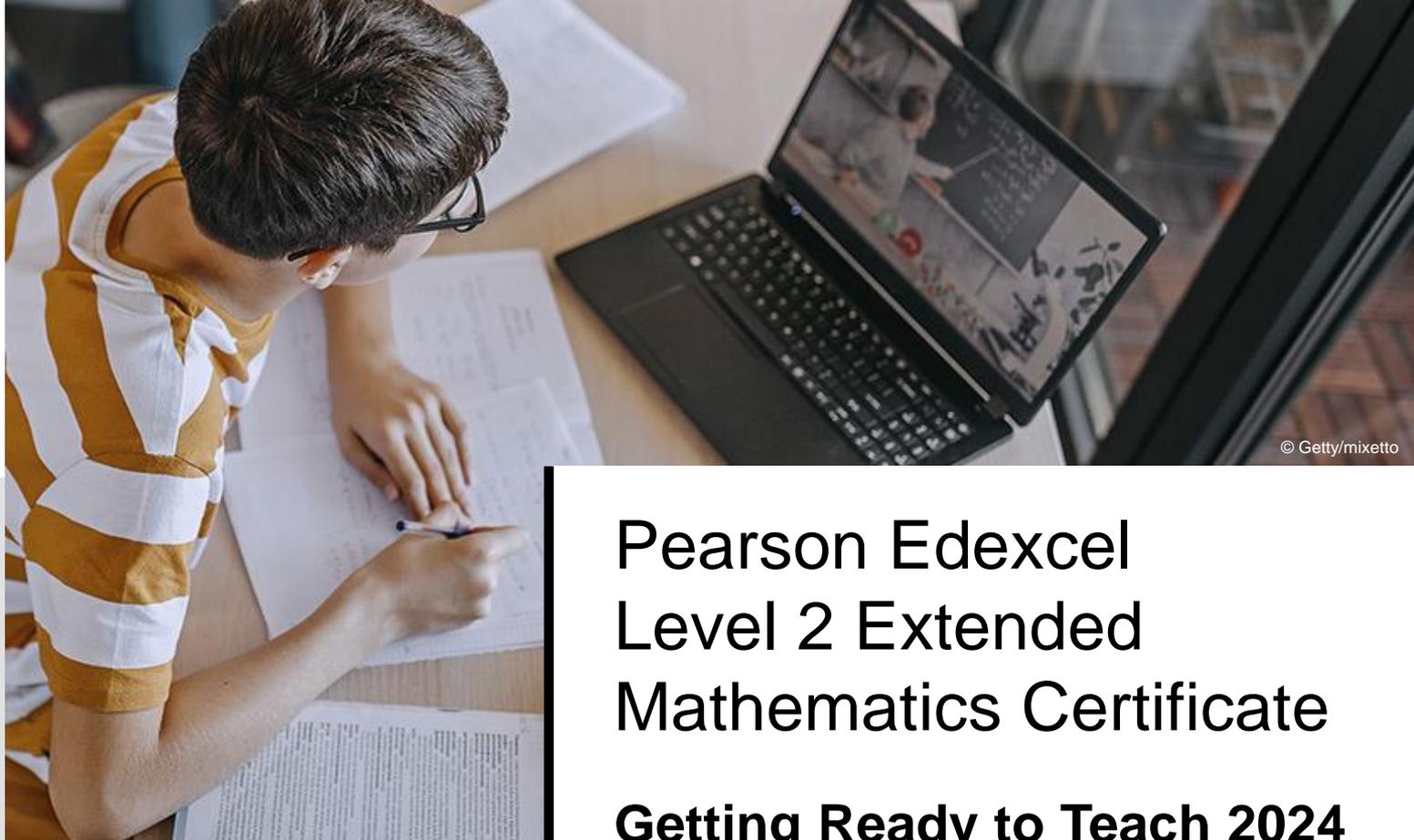




Pearson  
Edexcel



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# Pearson Edexcel Level 2 Extended Mathematics Certificate

## Getting Ready to Teach 2024



# | Whilst you're waiting...

**1** How many year 11 students in 2023 Higher achieved over 230 marks (out of 240)?

**2**

**Maths challenge**

$ab = 8$  and  $a + b = 4$

What is the value  
of  $\frac{1}{a} + \frac{1}{b}$ ?



# Whilst you're waiting...

**1** How many year 11 students in 2023 Higher achieved over 230 marks (out of 240)?

Higher Tier 1MA1		
Total Candidates	231,277	
Mark	Candidates	% Candidates
240	31	0.01
239	70	0.03
238	64	0.03
237	85	0.04
236	129	0.06
235	137	0.06
234	185	0.08
233	192	0.08
232	215	0.09
231	234	0.1
230	262	0.11



# Whilst you're waiting...

2

Maths challenge:  $\frac{1}{a} + \frac{1}{b} = \frac{b+a}{ab}$

$$= \frac{4}{8}$$

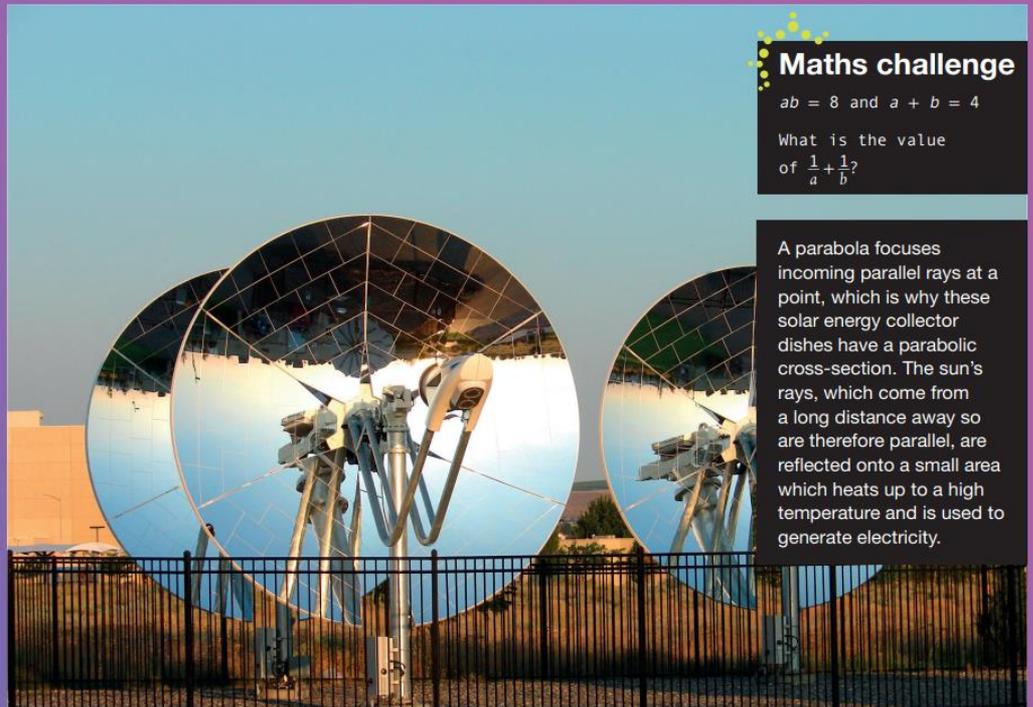
$$= \frac{1}{2}$$



# Thinking starters for each topic



## Chapter 1: Number



### Maths challenge

$$ab = 8 \text{ and } a + b = 4$$

What is the value of  $\frac{1}{a} + \frac{1}{b}$ ?

A parabola focuses incoming parallel rays at a point, which is why these solar energy collector dishes have a parabolic cross-section. The sun's rays, which come from a long distance away so are therefore parallel, are reflected onto a small area which heats up to a high temperature and is used to generate electricity.

## Chapter 3: Graphs



# | About us ...

- Christian Seager

Head of Maths at Ridgeway Secondary School in Redditch

- Melanie Muldowney

Lead Practitioner at Stratford Upon Avon School in Stratford Upon Avon

Together we make ...



# | About us ...





# | Today we will explore...

- We will try to answer as many of these as we can
- A **QUICK RECAP** of the key points from the launch events in June
- How our qualification can be delivered through case study ideas
- Resource ideas
- Our Support for you
- Your Next Steps



# Our initial conversation ...

- A look at the big questions you may have:

- Whats a Level 2?
- Why now? Others been around for ages?
- Value to the school? Open bucket?
- How much does it cost?
- How much contents overlaps with GCSE? How much content (list topics) is additional?
- How much content (list) is in A Level?
- How much content (list) is in IGCSE? Suitable to extend past IGCSE too?
- We use the AQA Level 2 Further Maths, whats the difference?
- Whats the direct equivalent qual from all other boards?
- How long to teach it?
- Suggested additional time needed on top of GCSE Maths
- What year groups to teach to?
- Coursework?
- Exams? If so, how many? When are the exams?
- How long are the exams?
- Calc/non calc?
- Do we have to teach Edexcel GCSE to enter this?
- How does the DfE funding work?
- 

We had so many questions ...



# | Our Vision

QUICK  
RECAP

At Pearson we are committed to *building lifelong confidence in maths*. We have listened to what teachers, learners and leaders want from a maths qualification that will **stretch, challenge and motivate** them to succeed.

We have built a qualification that allows learners to **express themselves** and **unlock their potential** in mathematics.



Our new Pearson Edexcel Level 2 Extended Mathematics Certificate gives students the **opportunity to challenge** themselves at Key Stage 4 and build the **perfect foundation** for further study.



# | Our Vision

QUICK  
RECAP

Dive deeper into  
the maths

Challenge your students to dive deeper into key concepts to encourage stretch, enjoyment and help them to achieve their potential.

Build the  
knowledge needed  
for further study

To expand on your student's mathematical knowledge and help them prepare for further study in many subjects.

Based on research  
and teacher insight

We've listened to your feedback and have created a qualification that suits your needs in the classroom, with key concepts and topics that make sense for your students at this stage of their learning journey.

Effortless switching  
and getting started

Switch, easily with support from our dedicated maths subject team, giving you the confidence to get started with us straight away.

Our commitment to  
your support

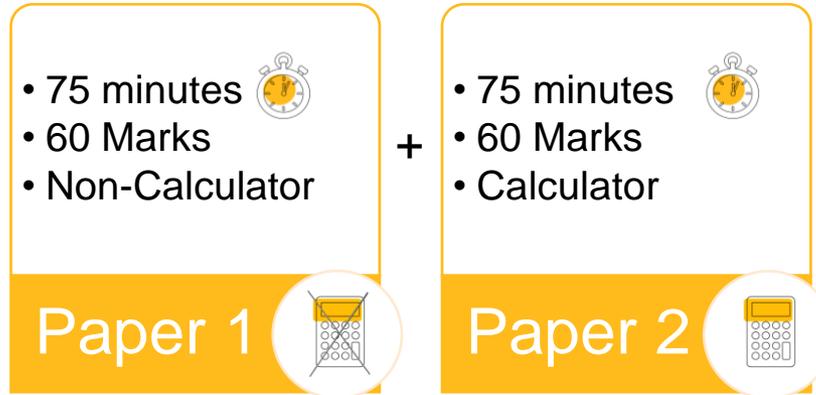
The support you know and trust from Pearson Edexcel. With a huge number of resources available throughout the year on our qualifications websites, the Maths Emporium and our PD Academy, we will ensure that you have the support you need to teach this qualification.



# Our qualification structure

QUICK RECAP

- Our assessment model



## Straightforward Assessments

- Both papers sat in the same exam window (Summer series only)
- Equal weighting for each paper
- Content and assessment objectives assessed across both papers
- Shorter, more targeted assessments designed with the exam series in mind





# Our qualification structure

QUICK RECAP

- Our grading scale explained

Distinction*	Working above GCSE Maths Level 2 content
Distinction	Broadly aligned to a <b>Grade 9 standard</b> at GCSE (9-1) Mathematics
Merit	Broadly aligned to a <b>Grade 8 standard</b> at GCSE (9-1) Mathematics
Pass	Broadly aligned to a <b>Grade 7 standard</b> at GCSE (9-1) Mathematics

## Why not Grades 4 to 9? We listened to what teachers told us...

“I want to be able to show those working *above* a grade 9 standard.”

“What would a grade 4 mean in an extended/further maths certificate? It presumably would be better than a grade 4 at GCSE?”

“I want to easily explain the difference between a GCSE Maths and Level 2 certificate grade.”

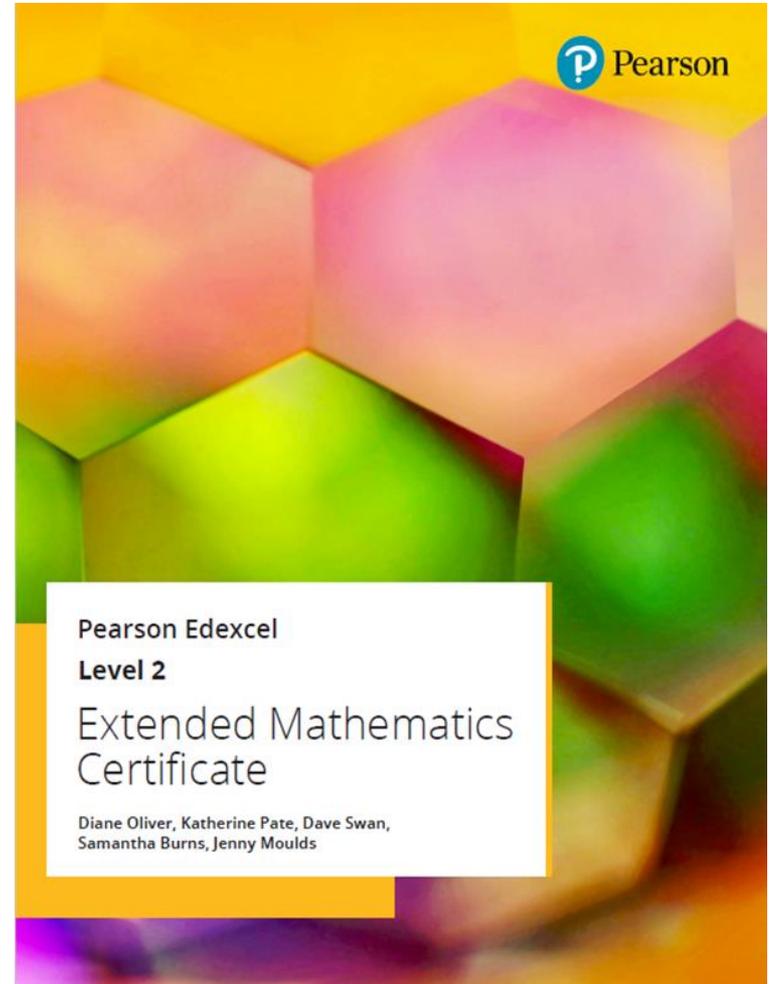


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# Our published resources

**Available May 2024**

- Textbook £29.99
- ActiveHub Essential Teaching
- £100 per annum
- Designed to support students to dive deeper into maths and work independently to boost their mathematical confidence
- Fully aligned to the specification and mapped to the Pearson Edexcel GCSE specification and SoW





# Our Textbook

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- Follows structure of SoW via chapters & lessons
- Fully worked solutions and examples
- Hints and 'talking points'
- Practice, practice, practice for every lesson!
- Mixed practice chapter
- Exam style questions and mark schemes in every lesson
- Problem solving and reasoning questions
- Links to GCSE clearly signposted

Chapter 1: Number

1.2 Surds

**Talking point**  
Why are square roots of square numbers, such as  $\sqrt{4}$  and  $\sqrt{25}$ , not surds?

Surds are irrational numbers. A surd is a multiple of  $\sqrt{n}$ , where  $n$  is an integer that is not a square number. For example,  $\sqrt{2}$ ,  $\sqrt{3}$ ,  $\sqrt{6}$  and  $4\sqrt{5}$  are surds but  $\sqrt{4}$  and  $\sqrt{25}$  are not surds.

The following rules apply to surds:

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

**Example 1**  
Using the positive values of the surds, simplify

a  $\sqrt{45}$     b  $\frac{\sqrt{12}}{2}$     c  $3\sqrt{6} - 2\sqrt{96} + \sqrt{486}$

**Example 2**  
Expand and simplify  $(3 - \sqrt{5})(7 + \sqrt{5})$

Expand the brackets completely before simplifying.  
Collect like terms.  
Simplify any roots if possible.

Chapter 1: Number

**Practice**

1 Using the positive values of the surds, simplify

a  $\sqrt{20}$     b  $\sqrt{18}$     c  $\sqrt{44}$   
d  $\sqrt{63}$     e  $\sqrt{98}$     f  $\sqrt{700}$

**Exam-style question**

2 Write  $\sqrt{180}$  in the form  $a\sqrt{b}$  where  $a$  and  $b$  are integers. (2 marks)

3 Using the positive values of the surds, simplify

a  $\frac{\sqrt{18}}{3}$     b  $\frac{\sqrt{75}}{5}$     c  $\frac{\sqrt{98}}{2}$

4 Using the positive values of the surds, simplify

a  $\sqrt{12} + \sqrt{75}$     b  $\sqrt{192} - \sqrt{48}$   
c  $\sqrt{500} + \sqrt{20} - \sqrt{45}$     d  $\sqrt{50} - \sqrt{18} + 2\sqrt{32}$   
e  $2\sqrt{75} - 2\sqrt{12} + \sqrt{147}$     f  $3\sqrt{20} + 2\sqrt{125} - 4\sqrt{180}$

5 Expand and simplify if possible

a  $\sqrt{5}(2 - \sqrt{3})$     b  $\sqrt{3}(4 - \sqrt{5})$     c  $\sqrt{20} + \sqrt{2}$   
d  $(4 + \sqrt{2})(5 - \sqrt{3})$     e  $(4 + \sqrt{5})(2 - \sqrt{3})$     f  $(2 + \sqrt{3})(4 + \sqrt{3})$   
g  $(2 - \sqrt{2})(3 - \sqrt{2})$     h  $(3 - \sqrt{7})(2 + \sqrt{7})$     i  $(4 - \sqrt{5})^2$   
j  $(\sqrt{2} + \sqrt{3})(\sqrt{2} - \sqrt{3})$     k  $(\sqrt{3} + \sqrt{5})^2$     l  $(\sqrt{5} - \sqrt{2})^2$

**Exam-style question**

6 a Find the value of  $(3 + \sqrt{3})^2$ . (2 marks)  
b Simplify  $\sqrt{5} + (\sqrt{3})^2 + (\sqrt{3})^2 + (\sqrt{3})^2$ . (3 marks)

7 Sara writes:  
 $(3 + \sqrt{5})^2 = 9 + 5 = 14$   
Sara is incorrect. Explain why.

8 Show that  $(\sqrt{7} - \sqrt{3})(\sqrt{7} + \sqrt{3}) = 2$ .

**Hint for Q5a**  
 $\sqrt{5}(2 - \sqrt{3}) = \sqrt{5} \times 2 - \sqrt{5} \times \sqrt{3}$

**Hint for Q5b**  
 $(4 - \sqrt{5})^2 = (4 - \sqrt{5})(4 - \sqrt{5})$

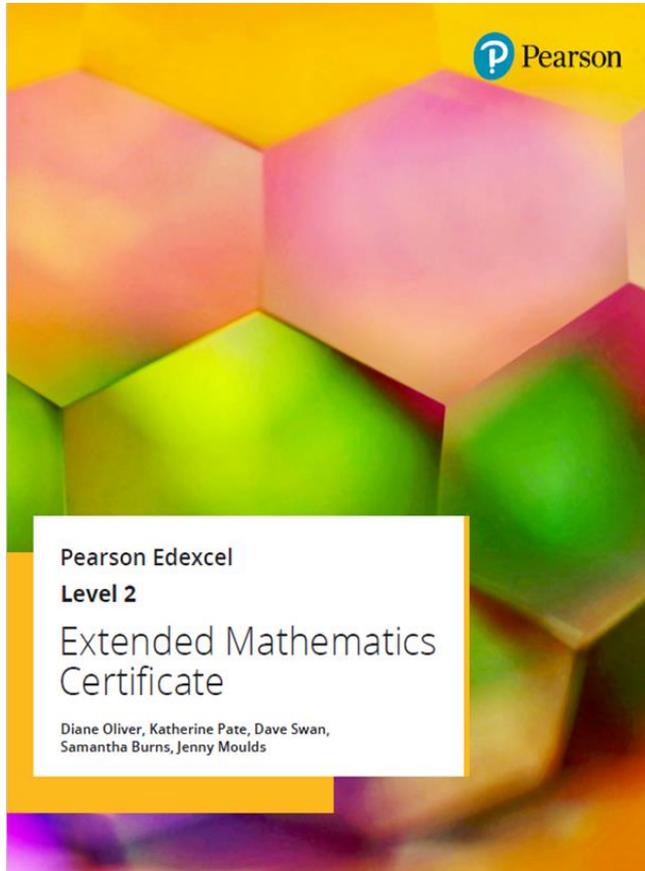
**Talking point**  
When the brackets for Q5a–f are expanded, some of the expressions can be simplified and some cannot. How do you know when they can be simplified? Explain why.

Expert author team – Diane Oliver, Katherine Pate, Dave Swan, Samantha Burns and Jenny Moulds



# Our ActiveHub support – Essential Teaching Subscription

QUICK RECAP



## Front of class book

- video walkthroughs to guide students through example questions (20)
  - these are the same approach as the free videos. Every lesson will have a video walkthrough
- fully worked solutions via Solution Bank – PDFs. Ideal for independent study
- 2 x editable worksheets with additional practice AND purposeful practice for every lesson
- SAMs in Assessment library
- zooms
- hide/reveal answers



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# Our Qualification Headlines

## Our Level 2 Extended Mathematics Certificate...

is aimed at higher achieving GCSE Maths learners.

can be easily taught alongside GCSE Maths.

allows for flexible delivery for guided or self-study.

extends our current Higher Tier Maths content to challenge beyond GCSE.

is designed to build the right foundation for further mathematical study at level 3.

assesses across Assessment Objectives 1, 2 and 3.

has Ofqual (14-16) funding available. [\(Details available from DfE website\)](#)



# Chris and Mel Feedback...

**Chapter 8: Probability**  
**2 Probability problems**

**Conditional probability** is the probability of one event happening depending on a previous event having already happened.

Write the probability of event A happening **given that** event B has already happened as:  $P(A|B)$

If two events are not independent, the outcome of one affects the other, so:

$$P(A \cap B) = P(B|A) \times P(A)$$

**Example 1**

A bag contains 5 blue balls and 7 red balls.

A ball is taken at random from the bag, and not replaced.

A second ball is then taken at random.

a Draw a probability tree diagram for this information.

b Work out the probability that the two balls are the same colour.

**Tree Diagram:**

```

    graph LR
      Root(( )) --- B1[5/12]
      Root --- R1[7/12]
      B1 --- B2[4/11]
      B1 --- R2[7/11]
      R1 --- B3[5/11]
      R1 --- R3[6/11]
  
```

**Annotations:**

- This is the probability of choosing blue on the second choice given that blue was chosen first. (points to 4/11)
- Probability of blue is 5 out of a total of 12. (points to 5/12)
- Probability of red is 7 out of a total of 12. (points to 7/12)
- This is the probability of choosing a red on the second choice given that blue was chosen first. (points to 7/11)
- This is the probability of choosing a blue on the second choice given that red was chosen first. (points to 5/11)

**Calculations:**

$$P(A \cap B) = P(B|A) \times P(A)$$

$$P(\text{both blue}) = P(\text{blue}|\text{blue}) \times P(\text{blue}) = \frac{4}{11} \times \frac{5}{12} = \frac{20}{132}$$

$$P(\text{both red}) = P(\text{red}|\text{red}) \times P(\text{red}) = \frac{6}{11} \times \frac{7}{12} = \frac{42}{132}$$

$$P(\text{both same colour}) = P(\text{both blue}) + P(\text{both red}) = \frac{20}{132} + \frac{42}{132} = \frac{62}{132}$$

**Formulas:**

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

$$P(\text{both same colour}) = P(\text{both blue}) + P(\text{both red})$$

$$= \frac{20}{132} + \frac{42}{132} = \frac{62}{132}$$

**Chapter 8: Probability**

**Practice**

- The probability that it will snow on a given day in December is 0.1. If it does snow, the probability that Brian's train will be late is 0.62. If it does not snow, the probability that Brian's train will not be late is 0.92.
  - Draw a probability tree diagram for this information.
  - Work out the probability that, on a given day in December, it **does not snow** and Brian's train is late.
- There are 5 blue balls and 4 red balls in a bag. Two balls are taken at random from the bag.
  - Draw a tree diagram to show this information.
  - Work out the probability that both balls will be the same colour.
- There are 7 red counters and 2 blue counters in a bag. One counter is taken at random from the bag, and not replaced. Then 4 green counters are added to the bag. A second counter is then taken from the bag.
  - Draw a tree diagram to show this information.
  - Work out the probability that both counters are different colours.
- Problem-solving** There are 12 sweets in a jar.  $x$  of the sweets are lemon flavour. The rest of the sweets are strawberry flavour. Grace takes, at random, two sweets from the jar. Find an expression, in terms of  $x$ , for the probability that Grace takes one sweet of each flavour.
- There are 3 grey T-shirts and 5 black T-shirts in a bag. Suha takes, at random, two T-shirts from the bag. The probability that Suha takes one grey T-shirt and one black T-shirt is  $\frac{20}{39}$ .
  - Reasoning** Show that  $2x^2 - 21x + 40 = 0$ .
  - Work out the probability that Suha takes two grey T-shirts.
- Problem-solving** In a bag there are 7 blue counters, 3 green counters and  $y$  red counters. Carlos takes, at random, two counters from the bag. Given that the probability that both counters are green is 0.01, work out the probability that Carlos takes one blue counter and one red counter.

**Hint for Q4**  
Draw a tree diagram.

**Hint for Q5b**  
Solve the equation to find the value of  $x$ .

**Problem-solving** Daisy and Enlai are both often late for school. The teacher recorded whether they are late on a number of days.

**Venn Diagram:**

```

    graph TD
      D((Daisy)) --- E((Enlai))
      D --- Donly[10]
      E --- Eonly[12]
      D --- Eonly
      E --- Donly
  
```

**Team-style question**

A bag contains  $x$  buttons. There are 6 red buttons in the bag. The rest of the buttons are white. A takes two buttons at random from the bag. The probability that both buttons are the same colour is  $\frac{17}{35}$ . Find the value of  $x$ . (6 marks)



# | Our big questions answered ...





# Scheme of Work

EMC					
CHAPTER / LESSON	HOURS	EMC SPEC REFERENCE	OBJECTIVES	NOTES	ADDITIONAL GUIDANCE
<b>1 Number</b>	2	N1.1, N1.2			
<b>2 Algebraic manipulation</b>	5	A2.1, A2.5			
2.1 Algebraic indices	1	A2.1	Simplify and manipulate algebraic expressions by simplifying expressions <del>including the laws of indices</del>		Indices taught in Y10 book 1 lesson 2.1
2.2 Expanding brackets	1	A2.1	Expand products of two or more expressions.  Use Pascal's triangle to expand binomials	Expanding linear expressions and expanding the product of linear and quadratic or cubic.  Expand a linear expression to the power of 3 or more using Pascal's triangle	Expanding 3 brackets taught in Y10, book 2 lesson 15.5 but there is very little on this.
2.3 Factorising	1	A2.1	Factorise cubic expressions given one factor of the expression using polynomial division	Students need to use the factor theorem but not remainder theorem. Include cancelling of fractions – take a fraction out as a common factor	Factorising quadratics taught in Y10, book 1 lesson 2.7
2.4 Completing the square	1	A2.5	Complete the square.	Focus on completing the square where the coefficient of $x^2$ is not 1 and the coefficient of $x$ is not even. <del>Understand algebraic perfect squares at 2.3.2</del>	Completing the square taught in Y10, book 1 lesson 9.4
2.5 Algebraic fractions	1	A2.1	Simplify and manipulate algebraic fractions.	Include simplifying a cubic over a linear expression using polynomial division to first factorise the cubic expression	Simplifying algebraic fractions not taught until Y11, book 2 lessons 17.3 and 17.4
<b>3 Graphs</b>	3	A2.4, A2.5, A2.6			

Scheme of Work for co-teaching with GCSE Higher includes:

- suggested teaching hours and exemplification of objectives
- links to GCSE Higher, International GCSE and A-level
- overlap of teaching content between GCSE and EMC

Assumes:

- additional 1 hour teaching per week for EMC in year 11
- that students have followed year 10 GCSE scheme of work



# Vs AQA...

MC only content		Content on both EMC and AQA Further Maths			AQA Further Maths only content		
Ref	Content	EMC Ref	AQA FM ref	Content	Ref	Content	Notes
N1.1	Calculate with integer, negative and fractional indices	N1.2	1.3	Simplifying surds and rationalise denominators	1.1	Knowledge and use of numbers and the number system	This is GCSE content so is assumed knowledge for EMC
A2.5	Identify and interpret roots, intercepts, turning points of quadratic functions graphically; deduce roots algebraically and turning points by completing the square	A2.1	2.1, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11, 2.12, 2.18	Simplify and manipulate algebraic expressions (including those involving surds and algebraic fractions) by: <ul style="list-style-type: none"> <li>• expanding products of two or more binomials, including using Pascal's triangle</li> <li>• factorising quadratic and cubic expressions, including using the factor theorem</li> <li>• simplifying expressions involving sums, products and powers, including the laws of indices</li> </ul>	1.2	The product rule for counting	This is GCSE content so is assumed knowledge for EMC
A2.6	Recognise, sketch and interpret graphs of simple quartic functions	A2.2	2.19	Algebraic proofs	2.16	Algebraic solution of linear equations in three unknowns	
A2.7	Sketch transformations of a given function	A2.3	2.2, 2.3, 2.4, 2.5	Functions, domain and range of functions, composite functions, inverse functions	2.20	Using $n$ th terms of sequences Limiting value of a sequence as $n \rightarrow \infty$	
A2.9	Calculate or estimate gradients of graphs and areas under graphs (including quadratic and other non-linear graphs), and interpret results in cases such as distance-time graphs, velocity-time graphs	A2.4	3.1, 3.2, 3.5, 3.6	Identify parallel and perpendicular linear lines in the forms $y = mx + c$ , $ax + by + c = 0$ , $ax + by = c$ and $y - y_1 = m(x - x_1)$	2.21	$n$ th terms of linear sequences	This is GCSE content so is assumed knowledge for EMC



# Vs GCSE/International/A Level

Reference	Extended Maths Certificate Content	Additional Guidance	GCSE ref	A level ref	International GCSE A ref	International GCSE B ref
N1.1	Calculate with integer, negative and fractional	This can include expressions that link algebra and the solving of linear	N7	2.1	1.4	1C
		include complex expressions where the denominator requires long division prior to rationalisation	N8	2.2	1.4	1D, 1E
		include the use of Pascal's triangle to expand polynomials, and the binomial factor theorem (but not the quadratic factor theorem). Pascal's triangle, or a similar row will be provided	A4	2.6	2.1, 2.2	3A, 3C-F
		need to understand the importance of clear structured algebraic working with proofs. Candidates should be able to write a general formula for an integer (n), and even number (2n) and an odd number (2n + 1 or 2n - 1). Types of proof can include, Proof by contradiction, Proof by Exhaustion and Proof by Example, Proof by Induction. Induction will not be assessed	A6	1.1	2.2	

## HIGHER ROUTE YEAR 10

GCSE (9-1) Higher
Book 1 Unit 1 Number
Book 1 Unit 2 Algebra
Book 1 Unit 3 Interpreting and representing data
Book 1 Unit 4 Fractions, ratio and proportion
Book 1 Mixed exercise 1
Book 1 Unit 5 Angles and trigonometry
Book 1 Unit 6 Graphs
Book 1 Unit 7 Area and volume
Book 1 Mixed exercise 2
Book 1 Unit 8 Transformations and constructions
Book 1 Unit 9 Equations and inequalities
Book 1 Unit 10 Probability
Book 1 Mixed exercise 3
Book 2 Unit 11 Multiplicative reasoning
Book 2 Unit 12 Similarity and congruence
Book 2 Unit 13 More trigonometry
Book 2 Mixed exercise 4
Book 2 Unit 14 Further statistics
Book 2 Unit 15 Equations and graphs

Mathematics Higher Student Book 1 (9781292346137)

## YEAR 11

GCSE (9-1) Higher
Book 2 Unit 16 Circle theorems
Book 2 Mixed exercise 5
Book 2 Unit 17 More algebra
Book 2 Unit 18 Vectors and geometric proof
Book 2 Unit 19 Proportion and graphs
Book 2 Mixed exercise 6

Pearson Edexcel GCSE (9-1) Mathematics Higher Student Book 2 (9781292346397)

## YEAR 11

EMC
Chapter 1 Number
Chapter 2 Algebraic manipulation
Chapter 3 Graphs
Chapter 4 More graphs
Chapter 5 Functions
Chapter 6 Equations and inequalities
Chapter 7 Pythagoras and trigonometry
Chapter 8 Probability
Chapter 9 Proof
Chapter 10 Vectors

Pearson Edexcel Extended Mathematics Certificate: Level 2 (9781292738116)

The 1 year scheme of work has been updated to give the mapped spec references in full, including the international GCSE specs.



# Vs GCSE/International/A Level



## Pearson Edexcel Level 1/Level 2 GCSE (9 – 1) in Mathematics (1MA1)

### Two-year Scheme of Work

Level 2 Extended Maths Certificate Edition

Higher Tier only



Unit	Title	Estimated GCSE hours	Suggested EMC hours
1	a Calculations, checking and rounding	4	
	b Indices, roots, reciprocals and hierarchy of operations	4	0.5
	c Factors, multiples, primes, standard form and surds (EMC note)	7	
2	a Algebra: the basics, setting up, rearranging and solving linear equations (EMC note)	10	2
	b Sequences	4	
3	a Averages and range	4	
	b Representing and interpreting data and scatter graphs	5	
4	a Fractions and percentages	12	
	b Ratio and proportion	6	
5	a Polygons, angles and parallel lines	6	
	b Pythagoras' Theorem and trigonometry (EMC note)	6	0.5
6	a Graphs: the basics and real-life graphs	6	
	b Linear graphs and coordinate geometry	8	1
	c Quadratic, cubic and other graphs (EMC note)	6	
7	a Perimeter, area and circles	5	
	b 3D forms and volume, cylinders, cones and spheres	7	
	c Accuracy and bounds	5	
8	a Transformations	6	
	b Constructions, loci and bearings	7	
9	a Solving quadratic and simultaneous equations (EMC note)	7	
	b Inequalities (EMC note)	6	
10	Probability	8	1
11	Multiplicative reasoning	8	
12	Similarity and congruence in 2D and 3D (EMC note)	6	
13	a Graphs of trigonometric functions	6	1.5
	b Further trigonometry	9	0.5
14	a Collecting data	4	
	b Cumulative frequency, box plots and histograms	6	
15	Quadratics, expanding more than two brackets, sketching graphs, graphs of circles, cubes and quadratics	7	4.5
16	a Circle theorems	5	0.5
	b Circle geometry	5	1
17	Changing the subject of formulae (more complex), algebraic fractions, solving equations arising from algebraic fractions, rationalising surds, proof	7	8.5
18	a Vectors and geometric proof	9	1
	b Reciprocal and exponential graphs; Gradient and area under	7	3.5

EMC content integrated into our GCSE maths 2 year Scheme of work  
(extended content objects)



# | Resources Ideas...

**Textbook, textbook, textbook**

5 Write  $\frac{3\sqrt{3}}{4-\sqrt{3}} - \frac{2}{\sqrt{3}}$  in the form  $\frac{a\sqrt{3}+b}{c}$  where  $a$ ,  $b$  and  $c$  are integers.

.....  
(Total for Question 5 is 4 marks)



# Resources Ideas...

“aiming for” grade 7, 8 and 9

**Category: 09 Aiming for Practice tests**

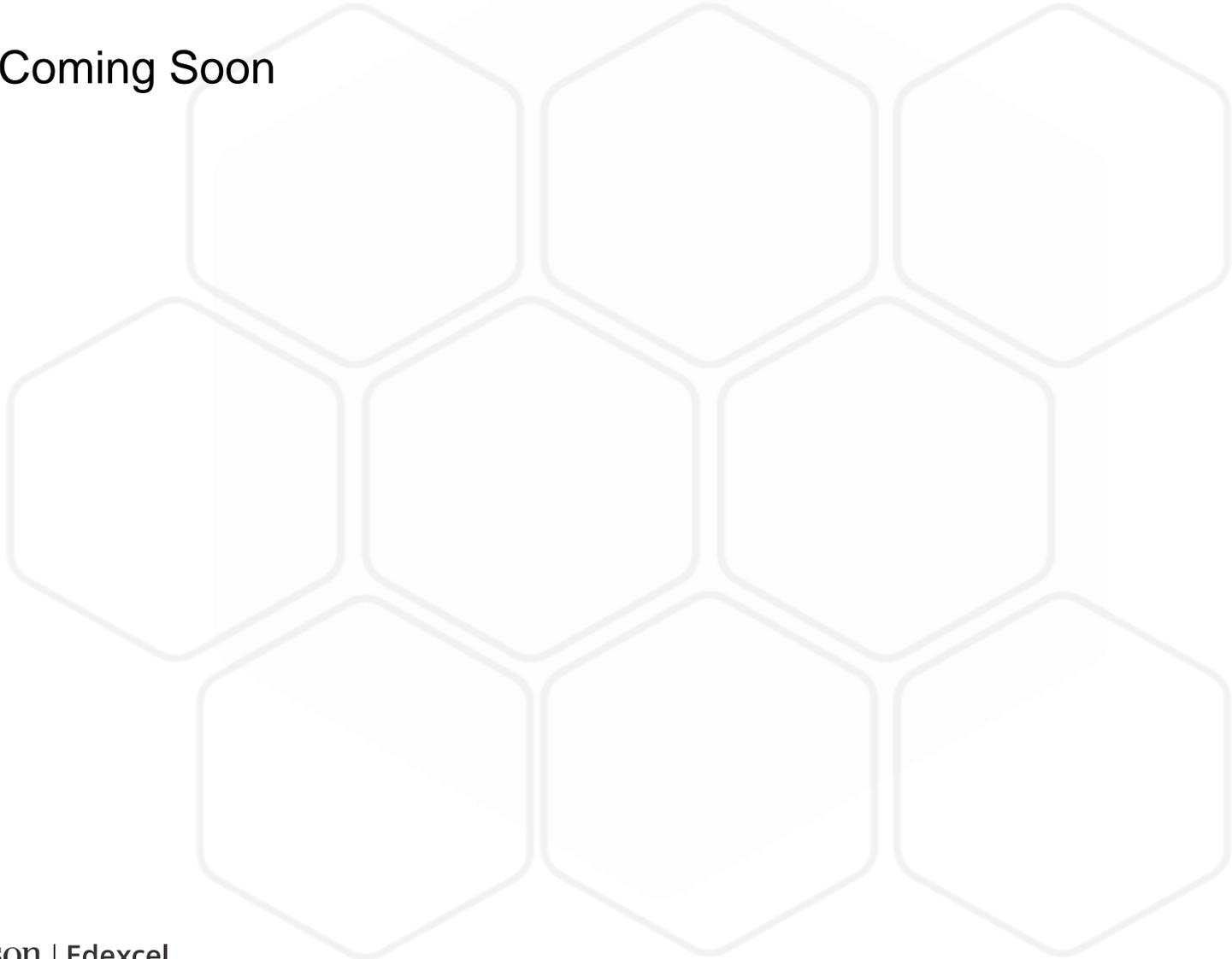
A new set of practice papers specifically designed to support students in working towards their target grade.

01 Achieving a Grade 1 Practice tests	02 Achieving a Grade 2 Practice tests	03 Achieving a Grade 3 Practice tests	04 Aiming for Grade 4 Practice tests	05 Aiming for Grade 5 Practice tests	06 Aiming for Grade 6 Practice Tests	07 Aiming for Grade 7 Practice tests
08 Aiming for Grade 8 Practice Tests	09 Aiming for Grade 9 Practice tests					



# | Vs Quick GCSE Tick Sheet!

- Coming Soon





# Emporium

The **Maths Emporium** is the new app > 

Level 2 Extended Maths certificate  
Register your interest >

## Our Qualifications



<b>NEW</b> Advanced Extension Award Mathematics	Edexcel Awards	Entry Level Certificate	Functional Skills Mathematics	<b>NEW</b> GCE AS/A level Further Mathematics	<b>NEW</b> GCE AS/A level Mathematics
<b>NEW</b> GCSE Mathematics	<b>NEW</b> GCSE Statistics	<b>NEW</b> International AS/A Level Mathematics	International GCSE Mathematics	<b>NEW</b> Level 2 Extended Mathematics Certificate	<b>NEW</b> Level 3 Core Maths (Mathematics in Context)

Emporium Social Feed 

Continued Professional Development 

## UPCOMING EVENTS

- JUL 4:00 pm - 5:00 pm  
**4** Level 2 Extended Maths Certificate: Getting Ready to Teach Online Event
- JUL 4:00 pm - 5:00 pm  
**10** GCSE Maths: ResultsPlus and Access to Scripts online event
- SEP 4:00 pm - 5:00 pm  
**10** A Level Mathematics: Everything you need to know – Getting started
- SEP 4:00 pm - 5:00 pm  
**19** GCSE Maths: Post-16 Exam Insights May/June 2024 online

## Additional Support

CPD	DE&I and Literacy	JustMaths	Key Stage 3	Legacy Qualifications	Very Past Papers Mathematics
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# Emporium

The **Maths Emporium** is the new app > 

Level 2 Extended Maths certificate  
Register your interest >

## Our Qualifications

<b>NEW</b> Advanced Extension Award Mathematics	Edexcel Awards	Entry Level Certificate	Functional Skills Mathematics	<b>NEW</b> GCE AS/A level Further Mathematics	<b>NEW</b> GCE AS/A level Mathematics
<b>NEW</b> GCSE Mathematics	<b>NEW</b> GCSE Statistics	<b>NEW</b> International AS/A Level Mathematics	International GCSE Mathematics	<b>NEW</b> Level 2 Extended Mathematics Certificate	<b>NEW</b> Level 3 Core Maths (Mathematics in Context)

Emporium Social Feed 

Continued Professional Development 

### UPCOMING EVENTS

JUL 4:00 pm - 5:00 pm

Maths Certificate: Teach Online

ResultsPlus and online event

Topics: Everything – Getting started

16 Exam 2024 online

01 Specification	02 Teacher Guidance	03 Schemes of Work and mappings	04 Specimen Papers and SAMs	<b>NEW</b> 05 Topic Practice Papers
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# Emporium

## Category: 05 Topic Practice Papers

Practice topic papers with mark schemes and embedded youtube walkthrough videos

-  01 Topic Paper – Area Under a Curve *New!*  
-  01b Topic Paper Mark Scheme – Area Under a Curve *New!*  
-  02 Topic Paper – Proof *New!*  
-  02b Topic Paper Mark Scheme – Proof *New!*  
-  03 Topic Paper – Equation of a circle *New!*  
-  03b Topic Paper Mark Scheme – Equation of a circle *New!*  
-  04 Topic Paper – Composite and Inverse Functions *New!*  
-  04b Topic Paper Mark Scheme – Composite and Inverse Functions *New!*  



# Topic Assessments and Video Support

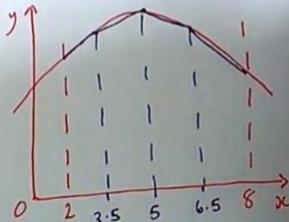
Pearson Edexcel  
Level 2  
Extended  
Mathematics  
Certificate

Area under a Curve  
Curve not provided

Area under a curve - curve not provided

Use the trapezium rule to find an estimate for the region under the curve  $y = 8x - x^2 + 16$  and between  $x = 2$ ,  $x = 8$  and the  $x$ -axis.

Use 4 strips of equal width.



(a)

Please check the examination details below before entering your candidate information

Candidate surname	Other names
Centre Number	Candidate Number

**Pearson Edexcel Level 2 Certificate**

Time: 1 hour 15 minutes

Paper reference: **7M20**

**Extended Maths Certificate**

Key Topic Practice Paper

Area Under a Curve (Trapezium Rule)

You do not need any other materials.

Total Mark

### Instructions

- This practice paper begins with a guided question. Scan the QR code to watch how to answer it.
- Sometimes there are two walkthrough videos for the topic paper please use both QR codes.
- There is also a modelled answer given.
- For all the practice questions that follow, **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- If your calculator does not have a  $\pi$  button, take the value of  $\pi$  to be 3.142

### Information

- There are 8 questions.
- The total mark for this paper is 32
- 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



QUICK  
RECAP



© Getty/SolStock

# Our Content

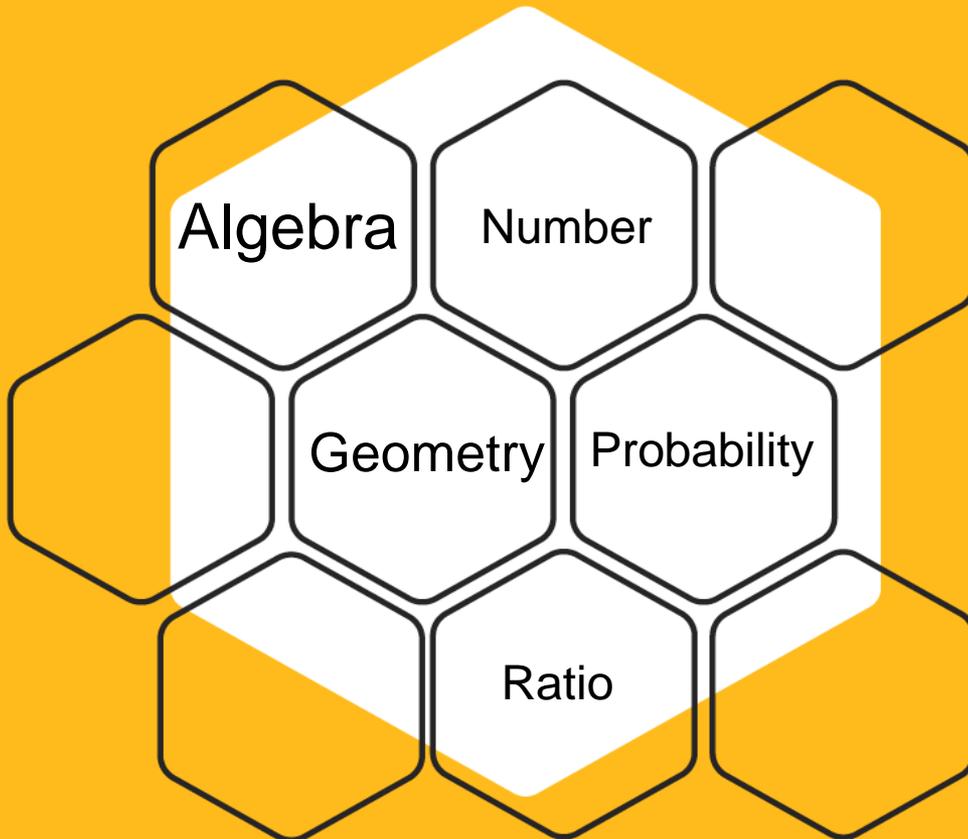


# Our Content

- Headlines

**QUICK  
RECAP**

We took the Higher tier GCSE Maths content as our starting point...



You asked for and we delivered...

- Significant extended content in **Algebra** (50%+)
- Key content extended in **Number, Geometry, Ratio** and **Probability**
- No **Statistics** to avoid overlap of GCSE Statistics



# Our Content

QUICK  
RECAP

- Our specification at a glance

	Content	
<b>Number</b>	1. Calculate with integer, negative and fractional indices	2. Surds
<b>Algebra</b>	1. Simplify and manipulate algebraic expressions 2. Use algebra to support and construct proofs 3. Inverse functions 4. Intercepts and quadratic functions 5. Interpret graphs of linear and quadratic functions	6. Transformations 7. Gradient of graphs including quadratic and other nonlinear graphs 8. Equation of a circle 9. Solve linear and quadratic equations 10. Solve simultaneous equations 11. Solve linear inequalities
<b>Ratio, proportion and rates of change</b>	1. Interpret gradient and rates of change	
<b>Geometry and measure</b>	1. Apply and prove standard circle 2. Pythagoras' theorem	3. Proof of formula 4. Vectors
<b>Probability</b>	1. Enumerate sets and combinations of sets systematically, using tables, grids, Venn and tree diagrams	2. Probability of independent and dependent events 3. Conditional probabilities

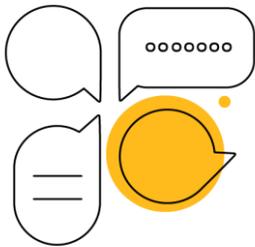


# Our Content

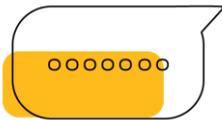
QUICK  
RECAP

In our research, we spoke to teachers across GCSE and A Level and listened to what they had to say...

- *We want our students to be **challenged** fully with GCSE topics and master the content which will **best prepare** them for further study*
- *It can be difficult in an A level class if some students have been exposed to different bits and pieces of A level content.*



*Quite often at A level you must unpick some of the shortcuts that students might have learnt. Better to **establish the foundations** of what they need so us A level teachers can **teach new content effectively**.*





# Our Content Examples from our SAMs

SLOW RECAP

## SAMs Paper 1 Question 8 (9 marks)

**A2.5** Identify and interpret roots, intercepts, turning points of quadratic functions graphically; deduce roots algebraically and turning points by completing the square

8 Alex throws a ball to Chris.

The motion of the ball is modelled by the equation  $s = -5t^2 + 20t + 7$  where  $s$  is the height of the ball above the ground, in metres, and  $t$  is the time, in seconds, from when Alex throws the ball.

(a) Write down the initial height of the ball?

AO2

..... metres  
(1)

(b) Explain why the model is not valid when  $t = 5$

AO2

.....  
.....  
(1)

(c) Work out the maximum height the ball reaches?

AO3

..... metres  
(3)

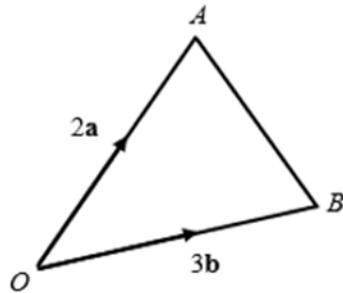


# Examples from our Sample Assessment Materials

SLOW RECAP

## SAMs Paper 1 Question 9 (8 marks)

9



$$\vec{OA} = 2\mathbf{a} \quad \vec{OB} = 3\mathbf{b}$$

C is a point such that  $\vec{AC} = \frac{5}{3}\vec{AB}$

D is a point such that  $\vec{AD} = x\mathbf{a} + y\mathbf{b}$  and  $\vec{CD} = \frac{-2}{3}x\mathbf{a} + \frac{13}{33}y\mathbf{b}$

Find the ratio  $\frac{OB}{BD}$

Give your ratio in its simplest form.

G4.6

Apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors; use vectors to construct geometric arguments and proofs

3 Marks AO1

5 Marks AO3

.....  
(Total for Question 9 is 8 marks)



# Examples from our Sample Assessment Materials

**Also 'Shadow' Versions  
(Second Set coming soon!)**



# Case Study ...

We know every setting is different, so flexibility has been built in to allow for different approaches of delivery.

We have stated 60 Guided Learning Hours, which are made up of activities that are completed by the learner under the direct instruction or supervision of a teacher in our specification. This, however, is a guide and will vary to meet the needs of your setting.

For some, the majority of the Total Qualification Time will be within existing maths timetabling as the content can be co-taught alongside GCSE maths delivery.

14-16 funding means that you can start to deliver this qualification as early as Y9 if you are teaching EMC topics or have high attaining students that would benefit from the stretch and challenge of EMC.



# How our qualification can be delivered

Guided Learning Hours



Independent Self-Study



← Total Qualification Time 121 Hours →

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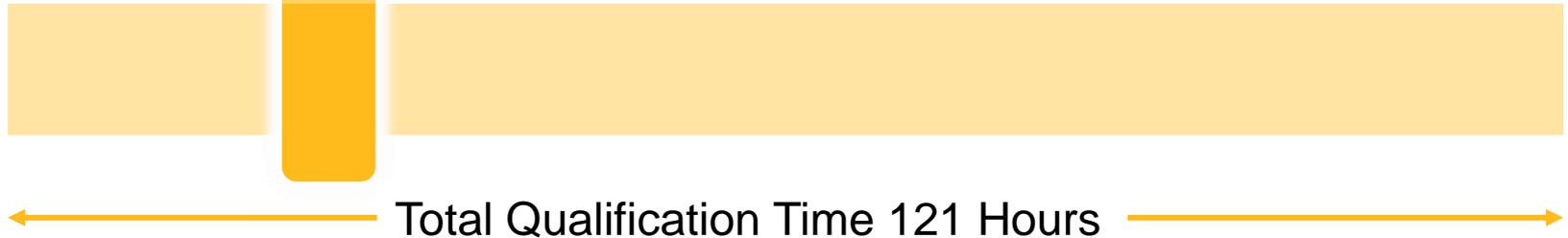
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# Case Studies ...

## Small School ... Chris

Not enough students to justify whole class teaching

## Large School ... Mel

Entire sets being taught/examined including after school sessions

## Not Year 11 entry ...

Possible year 10/year 12 entry



© Getty/damircudic

# Our Support for you



# | Our Support for you

## What's already available

Specification

Sample Assessment Materials

Worked Solutions for SAMs

Course Guide

Sample Chapter of textbook

Draft Scheme of Work

## What's coming

Practice Topic Paper with student walkthroughs

Specimen Papers

Mapping Documents

Scheme of Work

Practice Papers

Exam Wizard & Results Plus data

SAMs Exemplars

ActiveHub Essential Teaching

Textbook



The  
**Maths**  
Emporium

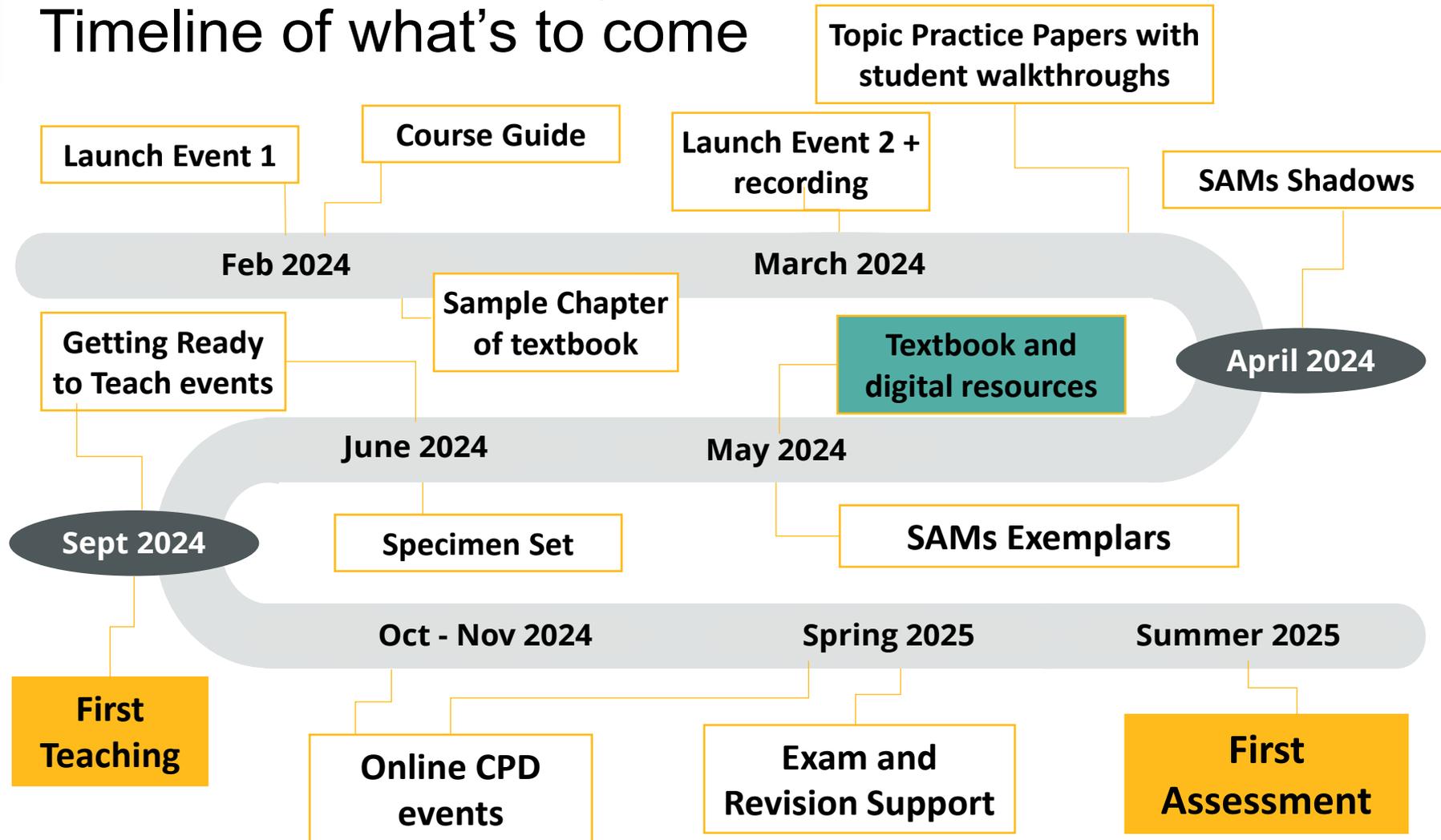
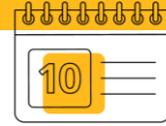


**ActiveHub.**  
Powered by insight.  
Guided by you.



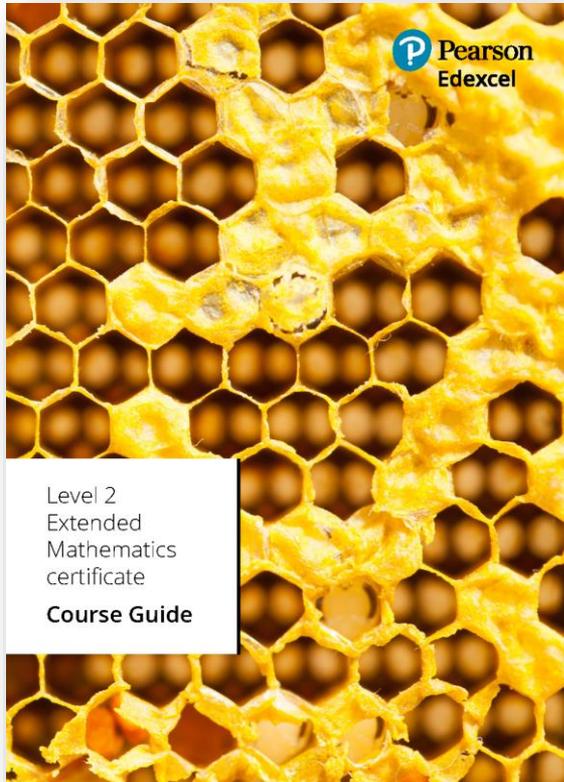
# Our Support for you

## Timeline of what's to come



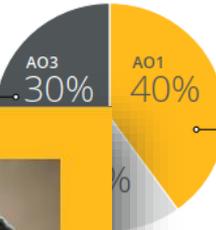


# Course Guide



## Qualification at a glance

Solve problems within mathematics and in other contexts.



Use and apply standard techniques.



The certificate consists of two externally assessed papers. Learners must complete both assessments in a single year.

### Range of Content

Assessment is:

75 mins  
100 marks

Both papers focus on the same content and Assessment Objectives

The majority of the content is focussed on algebra, but with opportunities to also demonstrate skills in geometry, probability, number and ratio.

## Why choose the Pearson Edexcel Level 2 Extended Maths Certificate?



We want to make sure that every learner has a chance to achieve their full potential at secondary school. Our Level 2 Extended Maths Certificate provides stretch and challenge that allows learners to dive deeper into maths.

Expand on student's mathematical knowledge to help them achieve their potential at KS4 and prepare for further study in many subjects.

A natural extension of the GCSE course, with small amounts of A Level content embedded, rather than units that focus completely on A Level content.

Based on teacher feedback, containing key concepts and topics that make sense for your students at this stage of their learning journey.

A huge amount of free resources available throughout the year on our Qualifications website, the Maths Emporium and our PD Academy as well as paid-for textbook and digital support.



# | Your next steps

Visit our Resources page for information on our published resources and download a free sample chapter of our textbook





# | Your next steps



Scan the QR code to visit our website where you can download our Specification, Sample Assessment Materials and Course Guide. Click the button to Register your Interest

Register your interest

We'll keep you up to date with important news, support and information about this qualification.

[> Register interest](#)

Make sure you're registered on The Maths Emporium **and** have signed up to our fortnightly newsletter for all the latest information on releases.

The  
**Maths**  
Emporium



# | All your Links

- Resources Page:  
<https://www.pearsonschoolsandfecolleges.co.uk/secondary/subjects/mathematics-secondary/pearson-edexcel-level-2-extended-maths-certificate>
- Qualification Website:  
<https://qualifications.pearson.com/en/qualifications/level-2-extended-maths-certificate/level-2-extended-maths-certificate.html>
- Register your Interest:  
<https://qualifications.pearson.com/en/forms/level-2-extended-maths-register-interest.html>
- The Maths Emporium: <https://mathsemporium.com/>



# | Dates for your diary ...

- Thursday 12<sup>th</sup> June 2025 pm (Astronomy, Russian)
- Wednesday 18<sup>th</sup> June 2025 pm (Nowt!)



# A Level Maths – Improvements To Our Papers

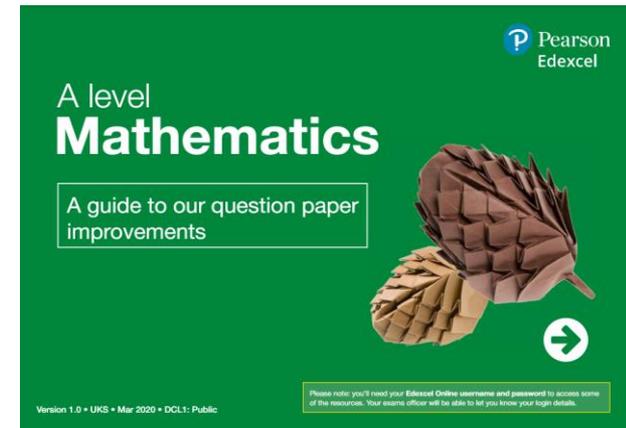


- **Have you heard** about the improvements to our papers since 2019?
- Students and teachers told us what they wanted, and we have listened.

The improvements ensure our exams are **more accessible** and that all students have a **positive exam experience**.

The improvements focus on:

- Helping candidates get off to a good start
- Providing more restart opportunities
- Unlocking trapped marks assessing standard techniques (AO1)
- Making language more accessible and reducing reading time
- Scan the **QR code** or use the **link** to read more.





# | Questions?

Christian Seager

[Christian@justmaths.co.uk](mailto:Christian@justmaths.co.uk)

Melanie Muldowney

[Mel@justmaths.co.uk](mailto:Mel@justmaths.co.uk)

