edexcel

AS and A level

Mathematics and Further Mathematics

2017

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Accreditation

AS & A level Mathematics

3rd submission:	18 January 2017
Ofqual response:	rejected
4th submission:	6 March 2017
Ofqual response:	24 march 2017

AS & A level Further Mathematics

2nd submission:	24 January 2017
Ofqual response:	rejected
3rd submission:	23 March 2017
Ofqual response:	not known

Our design principles

- Separate pure and applied papers
- Simple 2:1 ratio of pure to applied (A level Mathematics)
- Single large data set for the lifetime of the qualification – may be amended
- Further mathematics designed to aid parallel delivery with mathematics
- No non-calculator assessment

Overview of the specification

AS level Mathematics

Paper 1: Pure Mathematics 62.5% 2 hours 100 marks
Paper 2: Mechanics and Statistics 37.5% 1 hour 15 minutes 60 marks

Overview of the specification

A level Mathematics

Paper 1: Pure Mathematics 33% 2 hours, 100 marks	Any pure content can be assessed on either paper
Paper 2: Pure Mathematics 33% 2 hours, 100 marks	
Paper 3: Mechanics and Statistics 33% 2 hours, 100 marks	

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Overview of the specification

Subject to DRAFT Ofqual accreditation

AS level Further Mathematics

Paper 1: Further Pure Mathematics 50% 1 hour 40 minutes, 80 marks	Compulsory
Paper 2: Further Mathematics 50% 1 hour 40 minutes, 80 marks	Students choose two options which are assessed in dedicated sections of one paper. Options available in • Further Pure Mathematics • Further Statistics • Further Mechanics • Decision Mathematics

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Overview of the specification

A level Further Mathematics

Paper 1: Further Pure Mathematics 1 25% 1 hour 30 minutes, 75 marks	Compulsory content – any content on either paper
Paper 2: Further Pure Mathematics 2 25% 1 hour 30 minutes, 75 marks	
Paper 3: Further Mathematics Option 1 25% 1 hour 30 minutes, 75 marks	Students take two optional papers with options available in • Further Pure Mathematics • Further Statistics • Further Mechanics • Decision Mathematics
Paper 4: Further Mathematics Option 2 25% 1 hour 30 minutes, 75 marks	

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Subject to Ofqual accreditation DRAFT

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A level Further Mathematics options

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For papers 3 and 4 students choose a pair of options, either

- any two from column A, or
- a matching pair from columns A and B

Column A	Column B
Further Pure Mathematics 3	Further Pure Mathematics 4
Further Statistics 1	Further Statistics 2
Further Mechanics 1	Further Mechanics 2
Decision Mathematics 1	Decision Mathematics 2

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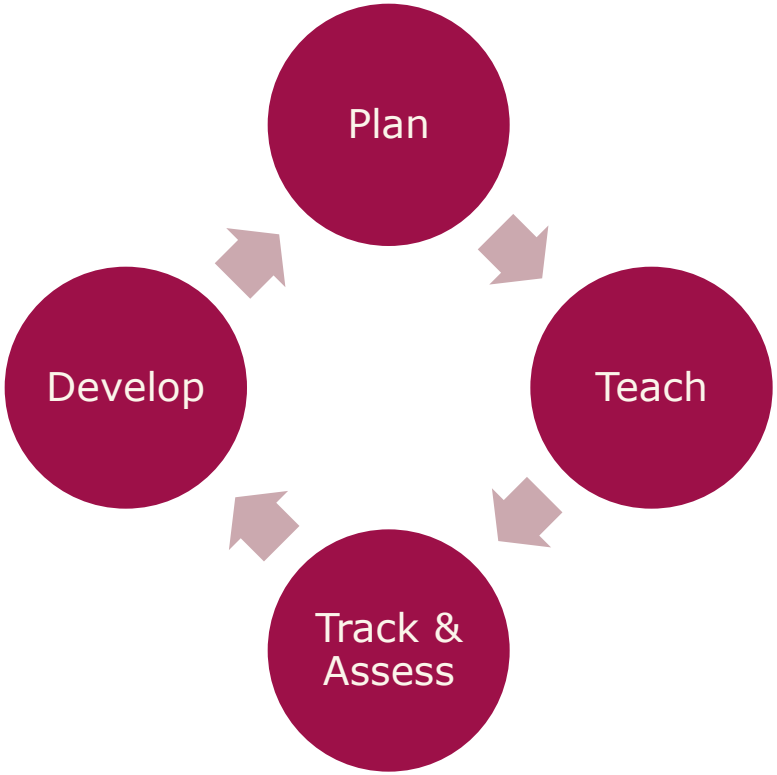
Supporting great mathematics teaching



Free Qualifications Support:
qualifications.pearson.com/en/qualifications/edexcel-a-levels/mathematics-2017.html

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Free support

- **Plan**:
  - **schemes of work and course planners** to help you deliver the qualifications in the best way for your centre
  - **content mapping documents**
  - getting started guide
- **Teach**:
  - topic-based resources to use in the classroom, particularly for the new and unfamiliar topics
  - content exemplification
- **Track and Assess**:
  - specimen papers
  - secure mock papers
  - practice papers
  - assessment guide
  - exemplar solutions
- **Develop**:
  - **a full programme of launch and training events**
  - **our collaborative network events**
  - **the famous Mathematics Emporium, led by Graham Cumming**

ResultsPlus and examWizard

ResultsPlus provides the most detailed analysis available of your students' exam performance. This free online service helps you identify topics and skills where students could benefit from further learning, helping them gain a deeper understanding of mathematics.

examWizard is a free exam preparation tool containing a bank of past Edexcel mathematics exam questions, mark schemes and examiners' reports, so you can create mock papers, homework or practice tests in minutes.

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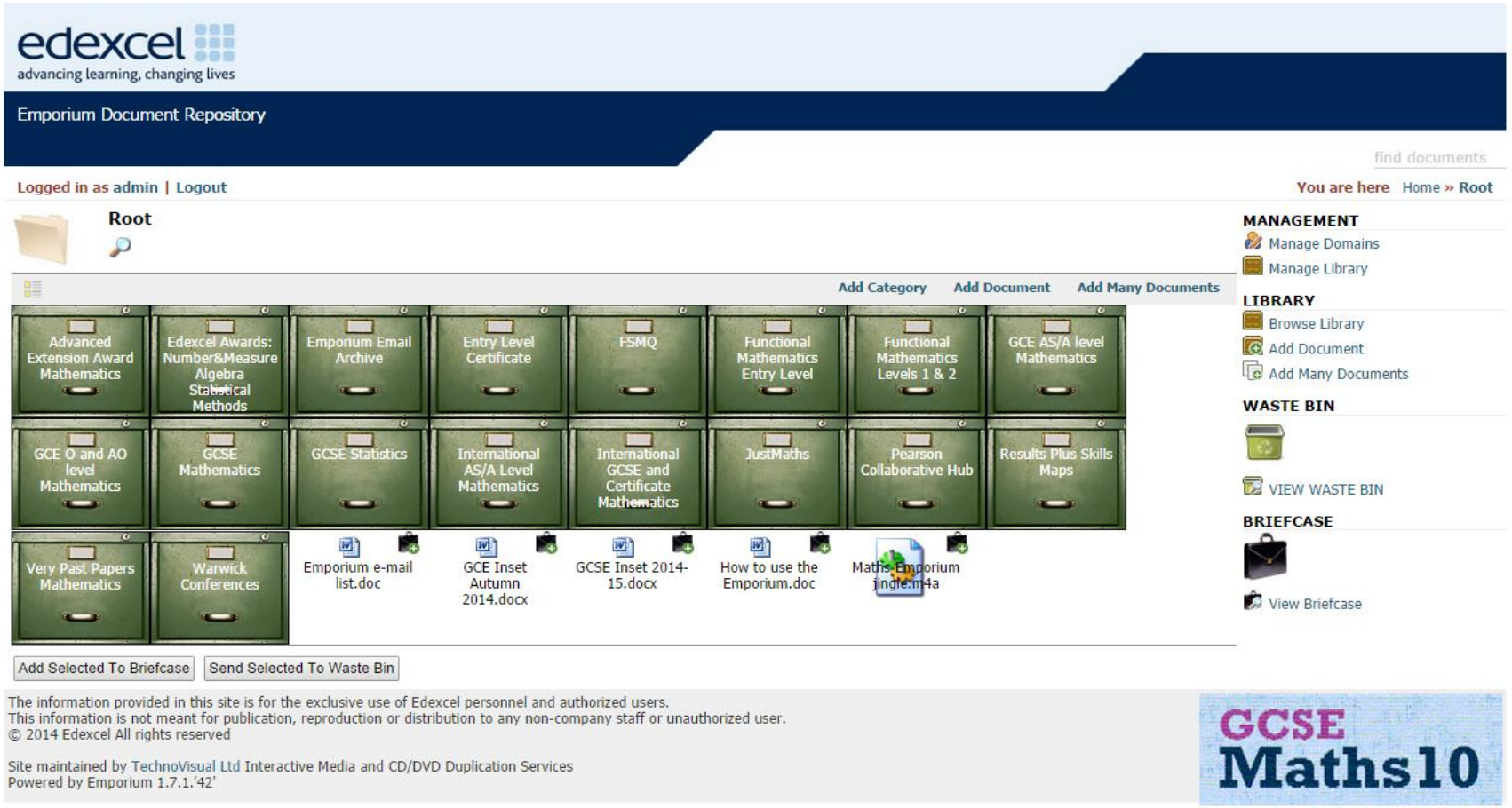
Mathematics Emporium



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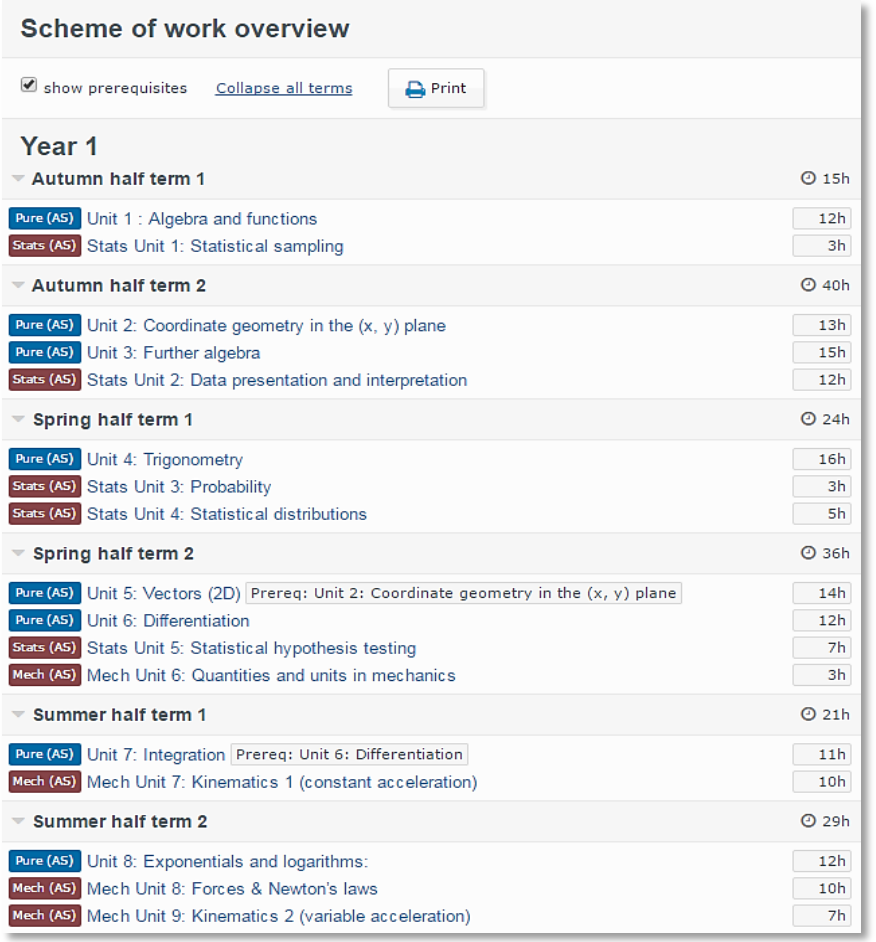
Interactive Scheme of Work

- Suggested teaching orders for any combination of AS and A level Maths and Further Maths
- Timings and prerequisites clearly labelled
- Fully editable: move content around and change timings
- Drill down to see detailed teaching notes and guidance
- Includes free topic tests for AS and A level Maths
- Integrates with ActiveLearn Digital Service (paid-for)



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Published Resources

We are committed to helping teachers deliver our Edexcel qualifications and students to achieve their full potential. To do this, we aim for our qualifications to be supported by a wide range of high-quality resources, produced by a range of publishers.

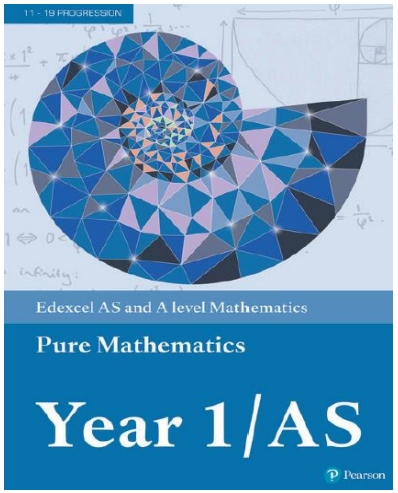
However, it is not necessary to purchase published resources to deliver our qualifications.

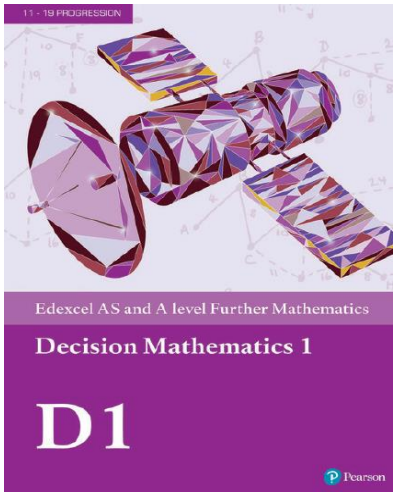
Published Resources

.Our textbooks* match the new Edexcel AS and A level exam structure, with separate Pure and Applied textbooks for AS and A level Maths, and a textbook per option for AS and A level Further Maths.

.✕**4 Textbooks** for AS and A level Maths

.✕**10 Textbooks** to choose from for all the core and optional AS and A level Further Maths content

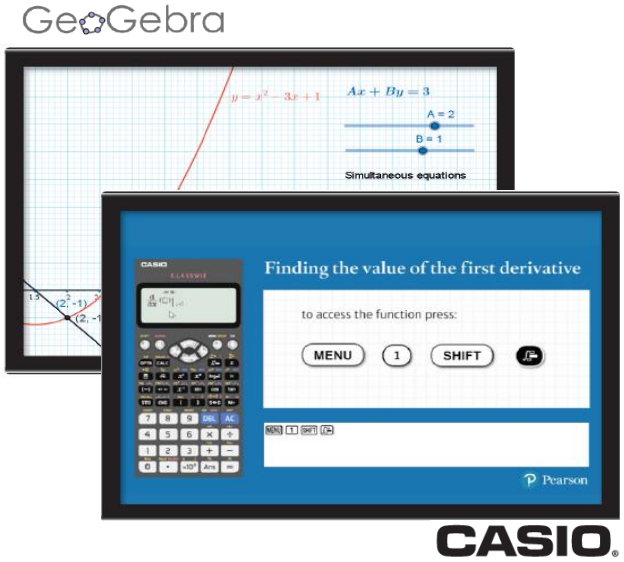


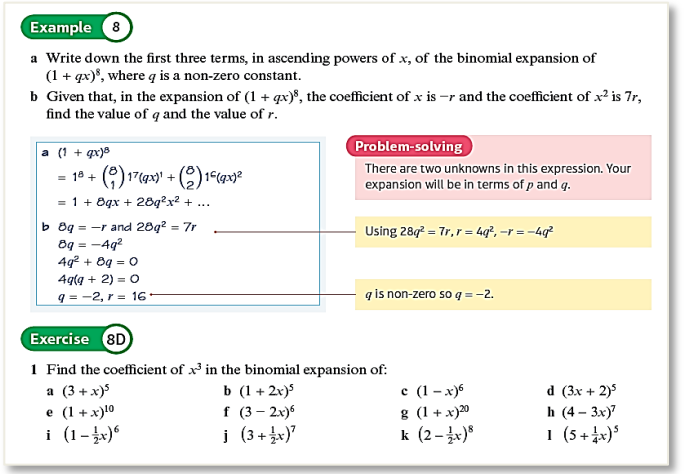


*These resources have not yet been endorsed.
You do not have to purchase any resources to deliver our qualification.

Published Resources

- Our textbooks:
- **are fully updated to match the new specifications**, with more of a focus on problem-solving and modelling
- **include FREE additional online content** such as SolutionBank, GeoGebra interactives and Casio support
- **include access to an online digital edition**
- **retain all the features you know and trust**, including examples, exam-style questions, practice papers etc
- **match the Edexcel Scheme of Work**
- **Book an appointment**
- Talk to one of our maths experts to understand what's right for you and your students. Book an appointment at: www.pearsonschools.co.uk/alevelmathsappointment





Example 8

a Write down the first three terms, in ascending powers of x, of the binomial expansion of $(1 + qx)^8$, where q is a non-zero constant.

b Given that, in the expansion of $(1 + qx)^8$, the coefficient of x is $-r$ and the coefficient of x^2 is $7r$, find the value of q and the value of r.

a $(1 + qx)^8$
$= 1^8 + \binom{8}{1}1^7(qx)^1 + \binom{8}{2}1^6(qx)^2$
$= 1 + 8qx + 28q^2x^2 + \ldots$

b $8q = -r$ and $28q^2 = 7r$
$8q = -4q^2$
$4q^2 + 8q = 0$
$4q(q + 2) = 0$
$q = -2, r = 16$

Problem-solving
There are two unknowns in this expression. Your expansion will be in terms of p and q.

Using $28q^2 = 7r$, $r = 4q^2$, $-r = -4q^2$

q is non-zero so $q = -2$.

Exercise 8D

1 Find the coefficient of x^3 in the binomial expansion of:

a $(3 + x)^5$	b $(1 + 2x)^5$	c $(1 - x)^6$	d $(3x + 2)^5$
e $(1 + x)^{10}$	f $(3 - 2x)^6$	g $(1 + x)^{20}$	h $(4 - 3x)^7$
i $(1 - \frac{1}{2}x)^6$	j $(3 + \frac{1}{2}x)^7$	k $(2 - \frac{1}{2}x)^8$	l $(5 + \frac{1}{4}x)^5$

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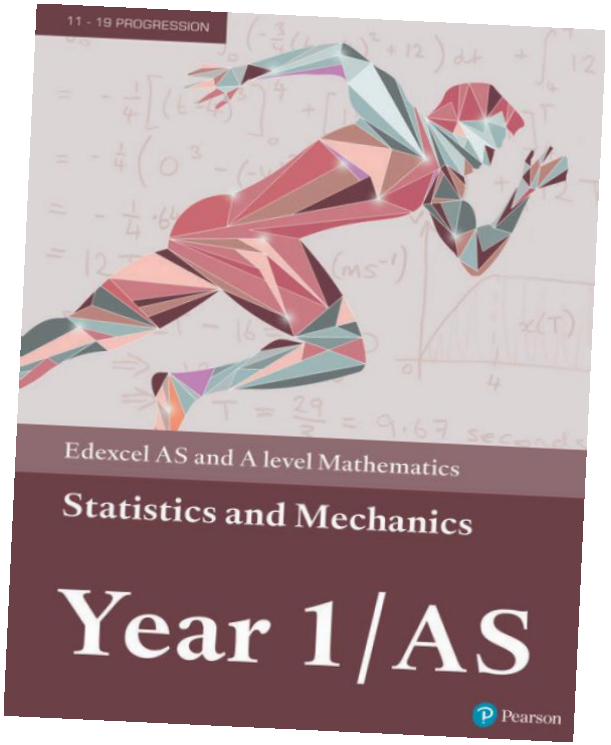
Published Resources

- You've told us you'd like plenty of time to prepare for first teaching, and so we'll be making the 'Statistics and Mechanics Year 1/AS' textbook available online for FREE from Spring 2017.



- This will help you:
- familiarise yourselves with the Statistics and Mechanics content that is now compulsory for AS and A level Mathematics
- get some ideas on how to use the large data set in your teaching
- understand how the new calculators can be used with Statistics and Mechanics

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Other published resources

We are working with a range of publishers who are looking towards getting their resources endorsed.

- **Collins**: Collins' A-level Maths resources. Master the new linear A-level with Collins' brand new Student Books, providing full and flexible course coverage for AS and A-level.
- **Hodder Education**: Develop your students' understanding of mathematical concepts and their applications with the only Edexcel resources developed with subject specialist Keith Pledger and Mathematics in Education and Industry (MEI).
- **Oxford University Press**: Edexcel A Level Maths is a brand new course focused on problem-solving and assessment, with accessible resources to support transition from GCSE.

No paid-for products or services are required to deliver Pearson Edexcel qualifications.