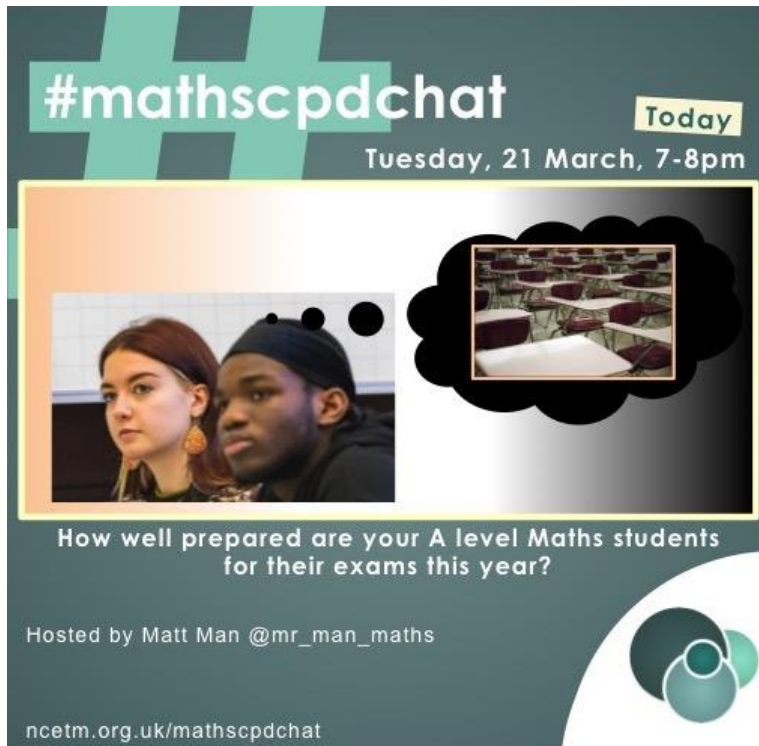


## #mathscpdchat 21 March 2023

How well prepared are your A level Maths students for their exams this year?

Hosted by [Matt Man](#)

This is a summary of the discussion – to see all the tweets, follow the hashtag [#mathscpdchat](#) in Twitter



The graphic features a large green hashtag #mathscpdchat on the left. To its right, the text 'Today' is in a yellow box, followed by 'Tuesday, 21 March, 7-8pm'. Below this is a central image showing two young women looking towards the camera, with a thought bubble above them containing a photo of a classroom. At the bottom, the text reads: 'How well prepared are your A level Maths students for their exams this year?' Hosted by Matt Man @mr\_man\_maths. The website nctm.org.uk/mathscpdchat is listed at the bottom left, and the NCETM logo is at the bottom right.

The links shared during this discussion were:

[A Level \(16+\) Resources](#) which is the page on [Colleen Young](#)'s *Mathematics, Learning and Technology* website from which you can reach many 'outstanding resources for age 16+'. 'They will help your students develop mathematically wherever they are learning and whatever examinations they are taking!' It was shared by [Matt Man](#)

[Webmaths: KS5 Maths](#) which is a page of a website containing very many resources for KS5 maths teaching and learning. From there you can reach some of the sites listed below ... and many more. For example, you can reach a variety of Geogebra apps, some MEI sites, the websites of [Rob Southern](#) and [Susan Whitehouse](#), and *Underground Maths*. It was shared by [webmathscouk](#)

[These Have Worked for Us at A Level](#) which is an e-book from the Association of Teachers of Mathematics (ATM). It is a classic collection of activities for A level mathematics, by Barbara Binns, Kathleen Cross, Tansy Hardy, Gillian Hatch, Anne Haworth, Catherine Mottram and David Wilson. The tasks have been used by teachers in their A level courses and are designed to be useful to the teachers as individuals, and also to be the basis of discussion with colleagues. It was shared by [Teachers of Maths](#)

[Dr Oliver Mathematics](#) which is a website where you will find resources that include A level Mathematics Topic questions, A level Further Maths topic questions, real A level Mathematics and Further Mathematics Past Papers, and other material such as A level Maths and FM presentations and posters. It was shared by [Matt Man](#)

[MadAsMaths](#) which is a website of resources in many different forms that have been produced, collected and accumulated by the website's creator, who has used them in teaching and lecturing and to guide students into their mathematical careers. The materials include mathematical booklets classified by topic, with a large number of questions and full solutions, and practice papers with full solutions. It was shared by [Matt Man](#)

[TLMaths](#) which is a YouTube channel containing very many short (approximately five-minute) videos in each of which some small 'bit' of A level maths is explained/demonstrated by the teacher using a whiteboard. For example, one seven-minute video is called 'Cumulative Frequency', and another eight-minute video is 'Introducing Consequence'. It was shared by [Matt Man](#)

[Ideas for Sixth Form Mathematics: Pure Mathematics and Statistics](#) which is a book by [Colin Foster](#) from the Association of Teachers of Mathematics (ATM). It offers a wealth of innovative lesson ideas for important areas of post-16 mathematics teaching, bringing variety to the Pure Mathematics and Statistics curriculum areas within AS/A2 Mathematics and International Baccalaureate. It was shared by [Mary Pardoe](#)

[Ideas for Sixth Form Mathematics: Further Pure Mathematics and Mechanics](#) which is another book by [Colin Foster](#) from the Association of Teachers of Mathematics (ATM). It offers a wealth of innovative lesson ideas for important areas of post-16 mathematics teaching, bringing variety to the Further Mathematics and Mechanics curriculum areas. It was shared by [Mary Pardoe](#)

[Naiker Maths: A level Year 2 Pure Maths](#) which is the part of the [naikermaths.com](#) website where you will find 'all the topics covered for the Year 2 Pure Maths A Level course'. The topics have been broken down with corresponding legacy exam questions and their mark schemes, both carefully edited to the AS level 2018 specifications. It was shared by [Matt Man](#)

[Corbettmaths: 5-a-day](#) which is the part of the corbettmaths.com website where a different set of five 'maths questions' with answers is provided for each day of the year. They are provided/presented in various categories depending on the kind of maths course that they are intended to support. For example, there are daily sets for 'Core 1' and for 'Further Maths'. It was shared by [Matt Man](#)

[OCR: Planning and teaching B](#) which is the part of the OCR website dedicated to supporting teachers and students using the OCR AS and A level named as Mathematics B (MEI) – H630, H640 (from 2017). Links are provided from it to MEI (which provides advice and CPD relating to all the curriculum and teaching aspects of the course, along with teaching resources for these specifications), and to MEI Integral and MEI's 'Mechanics walkthroughs' video. It was shared by [Matt Man](#)

[OCR: Planning and teaching A](#) which is the part of the OCR website dedicated to supporting teachers and students using the OCR AS and A Level named as Mathematics A – H230, H240 (from 2017). It was shared by [Matt Man](#)

[AQA: All about Maths](#) which is the free-for-all-AQA-centres website that is provided to inform and support teachers and students who use the services of that exam board. Users can obtain past exam papers from this site. It was shared by [Matt Man](#)

[Maths Emporium](#) which is the free website that is intended for the use of teachers of mathematics in secondary schools, wherever they might be and regardless of which awarding body they use. This site contains 'over 20,000 files to do with Edexcel Mathematics and all the qualifications they offer, including past exam papers, mark schemes, examiner reports and grade boundaries'. It was shared by [Matt Man](#)

[Past Paper Questions By Topic](#) which are past exam paper resources for GCSE, IGCSE, AS, A level, and Further Maths from *Westies Workshop*. It includes questions, solutions/mark-scheme, formula book, and links to 'home' pages relevant to the 'content' of questions. It was shared by [Matt Man](#)

[A level Maths Exam Questions By Topic](#) which are resources from AlevelMathsRevision.com. Sheets of questions are arranged by topic/sub-topic (such as 'Yr1, Pure, Algebra, Proof') and there is a 'Related Tutorial Video' for each sub-topic. It was shared by [Matt Man](#)

[A-level Maths Papers](#) which are resources from physicsandmathstutor.com. Past 2017 exam papers for AS, A Level and Further Maths from AQA, Edexcel, OCR(A) and OCR(MEI) are available. It was shared by [Matt Man](#)

[AS/A Level GCE Practice Papers](#) which are resources from CRASHMATHS. Practice papers for AQA, Edexcel, and OCR are provided. It was shared by [Matt Man](#)

[Jethwa Maths: Mathematics Resources \(for A level\)](#) which is a website containing material to support A level and Further Maths in the form of 'ten-minute starters', 'Worksheets and Topic Tests', and 'Practice Papers'. The material is categorised separately as intended for 'Year 1' or 'Year 2' of an A-level/FM course. It was shared by [Matt Man](#)

[ExamQ](#) which is a website, by Mr Watts, containing past exam questions. It was shared by [Matt Man](#)

[Bicen Maths](#) which is the YouTube channel of Mr Bicen. The videos are designed to support students working for A level qualifications and were recorded in school. In some videos the teacher 'works through' exam questions, and in others he offers advice/guidance related to (taking) exams. It was shared by [Matt Man](#)

[Maths Genie](#) which is a website containing A level Maths questions arranged by topic (with solutions), a formula book, and an 'Edexcel AS and A Level Data Set. Videos are provided to support the exam questions. It was shared by [Matt Man](#)

[Tayyub Majeed's video A level support channel](#) which is the YouTube channel of [Tayyub Majeed](#) where you will find many videos that demonstrate ways of solving problems posed in current UK A level and Further Maths exams. It was shared by [Matt Man](#)

**An illustrated summary of the discussions in this #mathsCPDchat follows.**

This was the host's welcome tweet:



**Matt Man** @mr\_man\_maths · 15h

A very good evening to you all!  
Tonight, we will be discussing about preparation for our A Level Maths students this summer.  
As always, please use the hashtag [#mathscpdchat](#) so that I can keep track of your comments!

Matt's first main question ...



**Matt Man** @mr\_man\_maths · 15h

Question 1:  
Have you finished teaching the A Level Maths and/or Further Maths course to Year 13? How does your current situation look this year compared to last year?  
[#mathscpdchat](#)

... was followed by a statement about how things are going in his own school ...



**Matt Man** @mr\_man\_maths · 16h

Replying to [@mr\\_man\\_maths](#)  
I'll start off.  
Pure is almost finished. Just integration to go.  
Statistics is done!  
Mechanics is still a way away. My colleague is on methods and due to time limits, students have to do some self study at home to finish on statics.  
[#mathscpdchat](#)

... and then went on to prompt replies and lead to much discussion. That some A level teachers are feeling pressured was indicated by this short conversation ...



**Milena Lee** @MathsSecondary · 16h

Replying to [@mr\\_man\\_maths](#)  
No, slight panic but neither of us teachers are finished with wither class...  
Tell me I'm not the only one... [#mathscpdchat](#)



**Matt Man** @mr\_man\_maths · 16h

Replying to [@MathsSecondary](#)  
Definitely not Milena! Mechanics is a panic here. [#mathscpdchat](#)



**Claire Ollerenshaw** @c\_ollerenshaw · 13h

Replying to [@MathsSecondary](#) and [@mr\\_man\\_maths](#)  
You're not the only one!

... and many issues were raised and explored in the following long discussion. The following report from Ms KMP ...



**Ms KMP** @Ms\_Kmp · 16h

...

Replying to [@mr\\_man\\_maths](#)

We've finished Further Maths & I will finish my part of Maths next Thursday, other teacher will finish around the same time. Pretty similar to the year before.

In lockdown we finished FM so early that we did an extra unit for fun (no events to slow down teaching)

... generated several threads of tweets when the host responded to it by asking various different questions. There were these positive observations ...



**Matt Man** @mr\_man\_maths · 16h

...

Replying to [@Ms\\_Kmp](#)

Just wondering - what extra unit did you do for fun? It's interesting to hear that lockdown in some ways made teaching faster. [#mathscpdchat](#)



**Ms KMP** @Ms\_Kmp · 16h

...

Replying to [@mr\\_man\\_maths](#)

FP1 and it was rather fun, haven't taught those bits for a while [#mathscpdchat](#)



**Matt Man** @mr\_man\_maths · 16h

...

Replying to [@Ms\\_Kmp](#)

I love FP1. Really get into grips with heavier pure content, along with calculus. [#mathscpdchat](#)

... and Matt's inquiry about Ms KMP's first statement ...



**Matt Man** @mr\_man\_maths · 16h

...

Replying to [@Ms\\_Kmp](#)

That's awesome to hear. Just out of interest, what exam board and modules are you doing for Further Maths?

My sole student who is doing Further Maths via AMSP FM+ videos has done Core Pure, FP1 and FP2 and finished last week :)

[#mathscpdchat](#)

... caused some reports and thinking about class sizes and teaching-time allocations ...



**Ms KMP** @Ms\_Kmp · 16h


...

Replying to [@mr\\_man\\_maths](#)




Edexcel for both

Further is Core, FS1 & FM1

Cohort size 4, plus 2 who come along to heckle their friends (I taught both of them for 4/5 years, good kids )

-  **Matt Man** @mr\_man\_maths · 16h ...  
Replying to @Ms\_Kmp  
A very nice size! I have a similar size cohort who are in Year 12. Though they are only getting 2 hours per week - nowhere near enough. How many hours does your school provide for A Level Maths and Further Maths?  
Mine does a standard 9 hours per fortnight. #mathscpdchat
-  **Matt Man** @mr\_man\_maths · 16h ...  
Replying to @mr\_man\_maths and @Ms\_Kmp  
We are and continuing to press for an extra hour per fortnight to allow some breathing space. #mathscpdchat
-  **Ms KMP** @Ms\_Kmp · 16h ...  
Replying to @mr\_man\_maths  
You definitely need it. Keep nagging!
-  **Ms KMP** @Ms\_Kmp · Mar 21 ...  
Replying to @Ms\_Kmp and @mr\_man\_maths  
It's so hard to do it on 2 hours a week
-  **Matt Man** @mr\_man\_maths · Mar 21 ...  
Replying to @Ms\_Kmp  
Tell me all about it! Though I do have to take my hat off to the students. We are forecasting to finish Year 12 content by just after Whitsun. Cutting it fine though - fearing about Year 13 though! #mathscpdchat

... with discussion (prompted by a direct reply from Ms KMP to Matt's tweet above about 'a standard nine hours per fortnight') moving to consideration of whether it is beneficial to proceed with some Y13 'content' in the latter part of the summer term of Y12 ...

-  **Ms KMP** @Ms\_Kmp · Mar 21 ...  
Replying to @mr\_man\_maths  
9 hours for regular.  
Slipped my mind (planner & notebook at work) - maybe 8 for further?
-  **Matt Man** @mr\_man\_maths · Mar 21 ...  
Replying to @Ms\_Kmp  
Ah, that's interesting. We were discussing as a team and perhaps there is not enough of plugging Year 13 content in the Summer term of Year 12.
-  **Matt Man** @mr\_man\_maths · 16h ...  
Replying to @mr\_man\_maths and @Ms\_Kmp  
So for Statistics, I started straight off after the mock exams for Year 12 last summer, hence the additional time available. #mathscpdchat



**Ms KMP** @Ms\_Kmp · Mar 21

...

Replying to @mr\_man\_maths

As soon as mocks are done we get started in Y13 content. The more that we can do in June/July, the better



**Matt Man** @mr\_man\_maths · Mar 21

...

Replying to @Ms\_Kmp

Absolutely! Probably need to convince SLT that too long a study leave at Year 12 does interfere time available when we get towards Year 13.

#mathscpdchat



**Ms KMP** @Ms\_Kmp · Mar 21

.

Replying to @mr\_man\_maths

I think they've drastically cut Y12 study leave #mathscpdchat



**Matt Man** @mr\_man\_maths · Mar 21

...

Replying to @Ms\_Kmp

I wonder if all schools have done so? Where I'm at - adding in exam feedback and one week's work experience (though that is useful) has cut time available during June/July. #mathscpdchat



**Ms KMP** @Ms\_Kmp · Mar 21

...

Replying to @mr\_man\_maths

We have an activities week where all work experience type stuff happens. Does help to keep track of who is in and out of school #mathscpdchat

... and discussion about organisation of students in groups evolved when another teacher also replied to Matt's 'A very nice size!' tweet above (which is repeated here):



**Matt Man** @mr\_man\_maths · 16h

...

Replying to @Ms\_Kmp

A very nice size! I have a similar size cohort who are in Year 12. Though they are only getting 2 hours per week - nowhere near enough. How many hours does your school provide for A Level Maths and Further Maths?

Mine does a standard 9 hours per fortnight. #mathscpdchat



**Claire** @claire3142 · 15h

...

Replying to @mr\_man\_maths and @Ms\_Kmp

#mathscpdchat 4.5 hrs a week for A level and an extra 4.5 hours a week for further maths. FM students do maths in yr1 and further in yr2. All exams at end of yr2.





**Matt Man** @mr\_man\_maths · 15h

Replying to @claire3142 and @Ms\_Kmp

Lovely! I assume with mock exams in between? #mathscpdchat



**Ms KMP** @Ms\_Kmp · Mar 21

Replying to @claire3142 and @mr\_man\_maths

Sounds idyllic! 😊

We have 3 maths groups, but no guarantee that FM students in same class. Only managed a sole FM group to do Alevel in Y12 & FM in Y13 once in last 15 years at this school



**Matt Man** @mr\_man\_maths · Mar 21

Replying to @Ms\_Kmp and @claire3142

Yes, would be interested to know numbers doing Maths and Further Maths @claire3142 #mathscpdchat



**Claire** @claire3142 · Mar 21

Replying to @mr\_man\_maths and @Ms\_Kmp

Two FM groups in yr1 (just over 30 this year) then 1 group in year 2 (over 20 this year). (Some decide not to do further maths and join a year 2 maths class in year 2)



**Matt Man** @mr\_man\_maths · Mar 21

Replying to @claire3142 and @Ms\_Kmp

That is massive! How big is your cohort for 6th form? #mathscpdchat



**Claire** @claire3142 · Mar 21

Replying to @mr\_man\_maths and @Ms\_Kmp

It's a sixth form college. 6maths classes in each year group (not including FM)

Ms KMP started another thread within this whole discussion (which included remarks about the relative 'lightness' of the statistics content, compared with mechanics, presently in A level and Further Maths) by adding (replying) to her own first comment that had started it (and is copied again here):



**Ms KMP** @Ms\_Kmp · 16h

Replying to @mr\_man\_maths

We've finished Further Maths & I will finish my part of Maths next Thursday, other teacher will finish around the same time. Pretty similar to the year before.

In lockdown we finished FM so early that we did an extra unit for fun (no events to slow down teaching)



**Ms KMP** @Ms\_Kmp · Mar 21

Replying to @Ms\_Kmp and @mr\_man\_maths

I'm doing Y13 mechanics which is what is finishing next week)



**Matt Man** @mr\_man\_maths · Mar 21 ...

Replying to @Ms\_Kmp

Lovely - Year 13 Mechanics is much heavier in content than Year 12 - perhaps why that is taking so much time? #mathscpdchat



**Ms KMP** @Ms\_Kmp · Mar 21 ...

Replying to @mr\_man\_maths

Quite possibly. We get stuck in after Stats is finished. #mathscpdchat



**Matt Man** @mr\_man\_maths · Mar 21 ...

Replying to @Ms\_Kmp

Yes, I guess it's still to do sequencing.

For my Year 13s, I did the statistics and chipped in pure where necessary - I get 2 hours per fortnight.

My two other colleagues - one gets 5 hours per fortnight and the other has 2 hours of Mechanics per fortnight. #mathscpdchat



**Matt Man** @mr\_man\_maths · Mar 21 ...

Replying to @mr\_man\_maths and @Ms\_Kmp

Statistics is definitely lighter - even the A Level textbook shows this.

Hence helping out with pure. #mathscpdchat



**Ms KMP** @Ms\_Kmp · Mar 21 ...

Replying to @mr\_man\_maths

I've got my old Alevel stats textbook and it looks like a brick compared to current spec #mathscpdchat



**Matt Man** @mr\_man\_maths · Mar 21 ...

Replying to @Ms\_Kmp

Oh yes! Not that I'm complaining about it. #mathscpdchat

The host's first question (repeated here) ...



**Matt Man** @mr\_man\_maths · 15h ...

Question 1:

Have you finished teaching the A Level Maths and/or Further Maths course to Year 13? How does your current situation look this year compared to last year?

#mathscpdchat

... prompted four more conversations. This one, indicating that, for some teachers at least, present circumstances are leading to better outcomes ...



**Becca** @Red\_Maths · 14h

...

Replying to @mr\_man\_maths

Better this year! We've finished pure and will finish stats this week. Mechanics will need a couple of weeks after Easter, but the other teacher for each class will be doing revision. For FM, we'll finish new content next week ready for revision after Easter #mathscpdchat



**Matt Man** @mr\_man\_maths · 14h

...

Replying to @Red\_Maths

That's lovely to hear! What made the difference this year compared to last? #mathscpdchat



**Becca** @Red\_Maths · 13h

...

Replying to @mr\_man\_maths

Not totally sure. I think probably covid knock on with a lot of gaps to fill at the start of the course holding us back. This year feels more 'normal', which is nice!

... and this, mentioning teaching time-allocation again, ...



**Heather Pehrson** @pehrson\_heather · 14h

...

Replying to @mr\_man\_maths

4 more stats lessons, then we're set!



**Matt Man** @mr\_man\_maths · 14h

...

Replying to @pehrson\_heather

That's lovely to hear! How many hours do you get per week/fortnight? #mathscpdchat



**Heather Pehrson** @pehrson\_heather · 14h

...

Replying to @mr\_man\_maths

5 hrs a week.



**Matt Man** @mr\_man\_maths · 14h

...

Replying to @pehrson\_heather

That would be our ideal! #mathscpdchat

... and another positive response ...



**Mr. S Barton** @MrSBarton94 · 16h

...

Replying to @mr\_man\_maths

Pure finished! But one chapter to go in each of stats and mechanics. I feel a little bit more relaxed than this time last year.

Further Maths I have bits and pieces of Further Mech and Further Pure still to finish but nothing drastic



**Matt Man** @mr\_man\_maths · 16h

...

Replying to @MrSBarton94

That's reassuring! I would say the same for our cohort but I guess with the anxiety with 77 days to go and counting and it's like... are they ready?  
[#mathscpdchat](#)



**Tayyub Majeed** @tm\_maths · 13h

...

Replying to @MrSBarton94 and @mr\_man\_maths

You can finish the fm1 course in 20 mins lol

... and a first mention of 'doing past papers':



**Dominic Barker** @D\_J\_Barker · 14h

...

Replying to @mr\_man\_maths and @AdamGoodridge18

I teach the applied side( OCR stats and mech) and finished a couple of weeks ago. Doing first past paper in timed exam conditions tomorrow, will be interesting to see how it goes



**Matt Man** @mr\_man\_maths · 14h

...

Replying to @D\_J\_Barker and @AdamGoodridge18

Nice to hear that there is time to do a "mock" paper. We're doing ours in April pending time available. We're hoping to do a full set before students spend the rest of the time doing revision for the exams.  
How many hours do you get per week/fortnight? [#mathscpdchat](#)



**Dominic Barker** @D\_J\_Barker · 14h

...

Replying to @mr\_man\_maths and @AdamGoodridge18

Applied is 7 40 minute lessons a week, pure is 8. Will be doing a paper every wednesday for our double till they disappear



**Matt Man** @mr\_man\_maths · 14h

...

Replying to @D\_J\_Barker and @AdamGoodridge18

That is quite generous! That adds up to 10 hours per week?  
[#mathscpdchat](#)

Finally in relation to the host's first question, because this is a full record of all contributions to the chat, in which comments that are (almost) irrelevant, or not helpful to other teachers, are included, we are showing the following responses to Q1 from Joanne Green. You may prefer to scroll down to page 12 where the summary of responses to Matt's second question begins.



**Joanne Green** ✓ @MsJoanneGreen · 18h

...

[1 P2 Year 11 Geography.] The work was set and to a great standard From Internet Geography [internetgeography.net/topics/weather...](http://internetgeography.net/topics/weather...) [#mathscpdchat](#) and made into A3 sheets with great questions. 5 pupils chose to play cards. 2 others chose to revise other things . This is the school's best group...



The diagram shows the UK surrounded by four air mass types with arrows indicating their movement:

- Polar Continental Air Mass** (top right): Originates from: Central Europe. Hot air brings dry summers. Cold air brings snow in winter.
- Returning Polar Maritime** (top left): Originates from: Greenland/ Arctic via North Atlantic. Moist, mild and unstable air bringing cloud and showers.
- Tropical Maritime Air Mass** (bottom left): Originates from: The Atlantic. Warm, moist air brings cloud, rain.
- Tropical Continental Air Mass** (bottom right): Originates from: North Africa.

internetgeography.net  
Weather hazards in the UK  
Weather hazards in the UK - The UK experiences a wide range of weather hazards. These include storm events, wind, snow, droughts ...



**Joanne Green** ✓ @MsJoanneGreen · 18h

...

[2 P2 Year 11 Geography.] [#mathscpdchat](#) , and they are not at the right aptitude for A levels or college. One goes to college and goes into other people's classes and not his own. He finds that funny, as did others. Hence my rational for the army. If these young people have ...



**Joanne Green** ✓ @MsJoanneGreen · 18h

...





[3 P2 Year 11 Geography.] a natural tendency to fight and cause disruption, I think that should be harnessed to transform those natural talents into expertise rather than a 'social failure' with a long line of victims. [#mathscpdchat](#) Look at the cost benefit analysis.




**Joanne Green** ✓ @MsJoanneGreen · Mar 21

...


@mr\_man\_maths [#mathscpdchat](#) The pupils at my previous school were unready mostly. Many didn't turn up to class and those who did, were at Grade 6.

-  **Matt Man** @mr\_man\_maths · Mar 21 ...  
Replying to @MsJoanneGreen  
Oh dear... how did the school deal with this? #mathscpdchat
-  **Joanne Green** ✓ @MsJoanneGreen · Mar 21 ...  
@mr\_man\_maths #mathscpdchat By holding 1-2-with pupils. They employed more teaching assistants and staff so that the work was divvied up. Also, part time time tables, and to encourage pupils to do projects to bring in whenever. I'd say school was struggling.
-  **Matt Man** @mr\_man\_maths · Mar 21 ...  
Replying to @MsJoanneGreen  
Ah I see... I wonder how they are doing now? #mathscpdchat
-  **Joanne Green** ✓ @MsJoanneGreen · Mar 21 ...  
@mr\_man\_maths #mathscpdchat I'm unsure as I haven't spoken with them. I sent them some @Scientology Happiness resources to help the teachers and pupils cope in other areas as the resources in school were great.

As with his Q1, the host immediately followed his Q2 ...

 **Matt Man** @mr\_man\_maths · 19h ...  
Great to see the tweets coming in. Interesting discussions so far.  
Here's Question 2:  
How well prepared do you feel your students are for their A Level Maths and/or Further Maths exams? How does this compared to last year?  
#mathscpdchat

... with his own response to it ...

 **Matt Man** @mr\_man\_maths · 19h ...  
Replying to @mr\_man\_maths  
I'll start off.  
Maths - this links to Question 1. Just need to get the content finished though in after school revision sessions - revision is well under way!  
Further Maths - my sole student is now doing practice papers.  
#mathscpdchat

... which prompted thoughts about some resources:

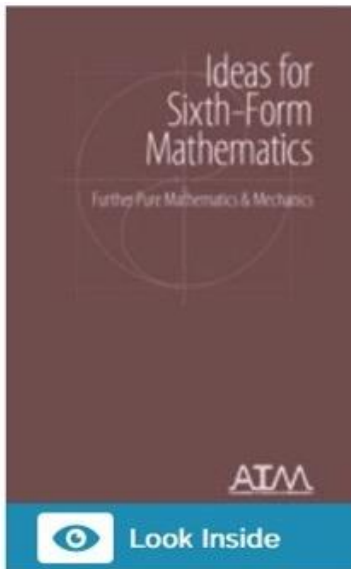


**Mary Pardoe** @PardoeMary · 19h



Replying to @mr\_man\_maths

I'm wondering, Matt ... had you thought of encouraging your FM student also-to-doing-practice-papers to have a look during the time left at some problems in this book by @colinfooster77 #mathscpdchat  
[atm.org.uk/Shop/Ideas-for..](http://atm.org.uk/Shop/Ideas-for..)



### Ideas for Sixth Form Mathematics: Further Pure Mathematics and Mechanics, Book

This book offers a wealth of innovative lesson ideas for important areas of post-16 mathematics teaching, bringing variety to the Further Mathematics and Mechanics curriculum areas. Written by Colin Foster. KS5. Available from £13.50.

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Quantity  [Add to cart](#)

Innovative lesson ideas for important areas of post-16 mathematics

This book offers a wealth of innovative lesson ideas for important areas of post-16 mathematics teaching, bringing variety to the Further Mathematics and Mechanics curriculum areas.



**Mary Pardoe** @PardoeMary · 19h



Replying to @PardoeMary @mr\_man\_maths and @colinfooster77

... this is from the introduction (first para) ...  
[#mathscpdchat](#)

## Introduction

When they reach the sixth form, many students find that their mathematics lessons take on a different style from what they are used to. Their class may be smaller and may work in less formal ways, giving students greater opportunity to be independent. However, sometimes students also comment that they no longer do the 'fun stuff' that they did in lower school. Now that they are treated as grown-ups, it is assumed that they merely want to make notes, do exercises and practise examination papers – that is apparently how adults are supposed to learn. Teachers may argue that this is likely to be the format at university, so it is their responsibility to prepare students for it now.



**Matt Man** @mr\_man\_maths · 19h

Replying to @PardoeMary and @colinfoster77

Oh yes, I do need to have a look at this resource - I know that @ATMMathematics have done some wonderful resources related to this.  
#mathscpdchat



**Mary Pardoe** @PardoeMary · 19h

Replying to @mr\_man\_maths @colinfoster77 and @ATMMathematics

... and in the distant past ... for example, this was a VERY useful publication by @ATMMathematics ...  
#mathscpdchat



**Mary Pardoe** @PardoeMary · 19h

Replying to @PardoeMary @mr\_man\_maths and 2 others

... this describes a bit about how it came about ...  
#mathscpdchat

The group has met in Manchester regularly over a period of two terms following the Easter Course 1983, to swap ideas and to suggest new ones. This pamphlet is produced to share the ideas with a wider group.

The group has tried to respond to the challenge presented by paragraph 243 in the Cockerft Report and to comments in the sixth form chapter about adult ways of working etc. We have also tried hard not to forget the comment "Mathematics lessons in secondary schools are very often not about anything." (paragraph 462).



**Mary Pardoe** @PardoeMary · 19h

Replying to @PardoeMary @mr\_man\_maths and 2 others

... and this is a task from/in it ...  
#mathscpdchat





### The Limit of a Sequence

For each of these sequences evaluate the first 10 terms and then the 20<sup>th</sup>, 30<sup>th</sup>, 40<sup>th</sup> and 50<sup>th</sup>.

(i)  $a_n = 3 + \frac{1}{10^n}$

(ii)  $b_n = \frac{\log_e n}{n}$

(iii)  $c_n = \frac{n^2 - n + 1}{n^2 + n + 1}$

(iv)  $d_n = \frac{n}{\log_e n}$

(v)  $e_n = (-1)^n$

(vi)  $f_n = n \sin n$

(vii)  $g_n = \frac{\sin n}{n}$

(viii)  $h_n = \text{INT} \left( \frac{20}{n} \right)$

Can you find ways of classifying their behaviour?

8



**Mary Pardoe** @PardoeMary · 19h

...

Replying to @PardoeMary @mr\_man\_maths and 2 others

... and these notes about that task show why it might have been (if it still existed? ... was available?) useful at 'revision' time ...

[#mathscpdchat](#)

### The Limit of a Sequence

These sequences were chosen to illustrate all possible behaviours of sequences.

- (i)  $\{a_n\}$  approaches a limit from above
- (ii)  $\{b_n\}$  approaches zero from above
- (iii)  $\{c_n\}$  approaches a limit from below
- (iv)  $\{d_n\}$  is an increasing sequence
- (v)  $\{e_n\}$  is a finitely oscillating sequence
- (vi)  $\{f_n\}$  is an infinitely oscillating sequence, interesting also for the organising power of the underlying graph of  $y = \sin x$
- (vii)  $\{g_n\}$  is a sequence which oscillates but tends to zero
- (viii)  $\{h_n\}$  is a sequence which REACHES its limit

This last example was invented in response to an attempted definition of a limit which required the sequence to fail to reach its limit.

In practical use this set of sequences appeared to generate a good understanding of behaviour of sequences. This was tested when questions were asked about the possible behaviour of series of positive terms. These were answered with confidence which was much greater than I expected.



**Matt Man** @mr\_man\_maths · 19h

Replying to @PardoeMary @colinfoster77 and @ATMMathematics  
Haven't looked at this yet! Something to consider. #mathscpdchat



**Teachers of Maths** @ATMMathematics · 18h






Replying to @PardoeMary @mr\_man\_maths and @colinfoster77  
It's available on our website here!

[atm.org.uk/Shop/Post-16--..](http://atm.org.uk/Shop/Post-16--..)

Matt's own response to his main Question 2 (extract repeated here) ...

Maths - this links to Question 1. Just need to get the content finished though in after school revision sessions - revision is well under way!  
Further Maths - my sole student is now doing practice papers.



... also prompted the following conversation about students (not) having the opportunity to study Further Maths within their own school:

-  **Milena Lee** @MathsSecondary · 19h ...  
Replying to @mr\_man\_maths  
We lost FM... 😞
-  **Matt Man** @mr\_man\_maths · 19h ...  
Replying to @MathsSecondary  
I know how that feels! I kept pushing for mine.  
This is where @Advanced\_Maths are brilliant with their support where class sizes aren't big enough.  
[#mathscpdchat](#)
-  **Milena Lee** @MathsSecondary · 19h ...  
Replying to @mr\_man\_maths and @Advanced\_Maths  
I know, looked into it but students desperate to take it tend to go elsewhere I'm afraid...
-  **Matt Man** @mr\_man\_maths · 19h ...  
Replying to @MathsSecondary and @Advanced\_Maths  
Totally understand! We lost a few too because of the unavailability of slotting Further Maths to the normal timetable. [#mathscpdchat](#)
-  **Milena Lee** @MathsSecondary · 19h ...  
Replying to @mr\_man\_maths and @Advanced\_Maths  
Gutting...

Matt's second main question itself (extract repeated here) rather than his reply to it ...

How well prepared do you feel your students are for their A Level Maths and/or Further Maths exams? How does this compared to last year?

... prompted the following conversation, which touched on the topic of 'GCSE grades students must have in order to be 'allowed' to embark on an A level maths course' ...

-  **Milena Lee** @MathsSecondary · 18h ..  
Replying to @mr\_man\_maths  
Better than last year I think, well, will be when we finished teaching...
-  **Matt Man** @mr\_man\_maths · 18h ...  
Replying to @MathsSecondary  
That's good to hear. How strong are the students this year compared to last year? I wonder whether the effectiveness of the advanced information by the exam boards were useful. [#mathscpdchat](#)



**Milena Lee** @MathsSecondary · 18h

...

Replying to @mr\_man\_maths

I didn't rate the AI much, felt I couldn't rely on it. Last year's Y13 were the cag lot though and our top set had a very generous (or unrealistic) y11 teacher and a acting Hof who did not stand up to her. I feel we had a lot of students that we shouldn't have had at a level..



**Milena Lee** @MathsSecondary · 18h

...

Replying to @MathsSecondary and @mr\_man\_maths

And quite a few who should have taken it didn't. #mathscpdchat



**Matt Man** @mr\_man\_maths · 18h

...

Replying to @MathsSecondary

Looks like that is the trend for Year 13. This year's Year 12 cohort for me is a lesser extent.

Though I wonder if this is to do with that although we insist on Grade 7 entry, Grade 6 GCSE students are still accepted?

Bringing extra funding to schools? #mathscpdchat



**Milena Lee** @MathsSecondary · 18h

...

Replying to @mr\_man\_maths

I manage to raise from 6 to 7 a few years ago. My most convincing argument in the proposal I had to write was probably that min req for physics is a 6 in maths gcse and that, like it or not, maths a level is harder mathswise than physics. #mathscpdchat



**Matt Man** @mr\_man\_maths · 18h

...

Replying to @MathsSecondary

Yes, two of the hardest A Levels. Add in Further Maths, and make that three. #mathscpdchat

Though SLT are now more convinced about my argument for my insistence of a Grade 7.

... and this happy comment:



**BMaths** @BerwickMaths · 7h

...

Replying to @mr\_man\_maths

We finished the content for A level Maths last week so we are doing practice papers now. A lot better than last year as we have more time@to revise



**Matt Man** @mr\_man\_maths · 7h

...

Replying to @BerwickMaths

Happy days! #mathscpdchat

Matt's third main question, and further comment ...



**Matt Man** @mr\_man\_maths · 20h

...

Let's keep the discussion on A Level exam prep going!

Question 3:

What resources are teachers using to revise for A Level Maths and/or Further Maths? How are these resources used to help prepare our students for their exams?



**Matt Man** @mr\_man\_maths · 20h

...

Replying to @mr\_man\_maths

It will be nice to get a range of resources used for the different exam boards, so that everyone is catered for. [#mathscpdchat](#)

... prompted the sharing of many resources (actual links to which are provided at the top of this summary). People gave their reasons for using, described, or just referred to, useful resources:



**Matt Man** @mr\_man\_maths · Mar 21

...

Replying to @mr\_man\_maths

So here are my go to resources.

For a start, head to [@ColleenYoung](#)'s page:

[colleenyoung.org/a-level-16/a-l...](http://colleenyoung.org/a-level-16/a-l...)

Lots of wonderful resources available for revision and general activities related to A Level. [#mathscpdchat](#)

A level revision question starters

Spot the Mistake - A Level - Year 2

Spot the Mistake - A Level Year 2 Pure

[colleenyoung.org](http://colleenyoung.org)

A Level (16+) Resources

Return to A Level (16+) Menu All the pages indexed below have outstanding resources for age 16+. These will help your students ...



**Matt Man** @mr\_man\_maths · 20h

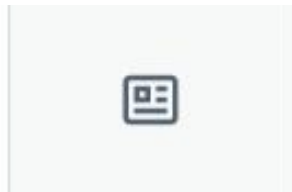


Replying to @mr\_man\_maths

Just looking at the page from @ColleenYoung's page and discovered "Dr Oliver Mathematics".

Looks like a wonderful resource that is something to consider:

[drolivermathematics.com](http://drolivermathematics.com)



drolivermathematics.com

Dr Oliver Mathematics | Mathematics | Further M...

Mathematics and Further Mathematics: don't you just love them? Thought so!



**Matt Man** @mr\_man\_maths · Mar 21



Replying to @mr\_man\_maths

And so does @TLMaths



youtube.com

TLMaths

Want to buy TLMaths a coffee?

<https://www.buymeacoffee.com/TLMaths> Many ...



**webmathscouk** @Dids31 · Mar 21

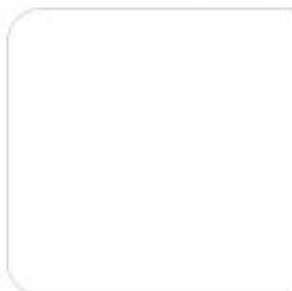


Replying to @mr\_man\_maths

Web page with lots of KS5 maths links including a past paper calendar for AS and A2 Edexcel

[webmathscouk.wordpress.com/ks5-maths/](http://webmathscouk.wordpress.com/ks5-maths/)

[#mathscpdchat](#)



webmathscouk.wordpress.com

KS5 Maths

AS Past Paper Calendar 2023 A2 Past Paper Calendar 2023 Standards Unit Improving Learnin...



**Matt Man** @mr\_man\_maths · Mar 21



Replying to @Dids31

Wow, wow and wow! Lots of links to wonderful resources. Thank you

@Dids31 [#mathscpdchat](#)



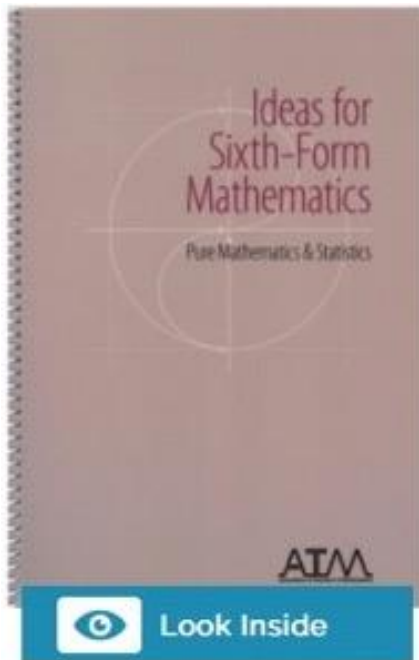
**Mary Pardoe** @PardoeMary · 20h

Replying to @mr\_man\_maths

There is also this lovely book by @colinfoster77 ...

[atm.org.uk/Shop/Ideas-for...](http://atm.org.uk/Shop/Ideas-for...)

#mathscpdchat



## Ideas for Sixth Form Mathematics: Pure Mathematics and Statistics, Book

This book offers a wealth of innovative lesson ideas for important areas of post-16 mathematics teaching, bringing variety to the Pure Mathematics and Statistics curriculum areas within AS/A2 mathematics and IB. Written by Colin Foster. KS5. Available from £13.50.

Non-Member Price: £18.00  
Member Price: £13.50

Quantity

[Add to cart](#)

Colin Foster's book brings variety to the pure mathematics and statistics topics within 6th form mathematics. It offers a wealth of innovative lesson ideas for important areas of post-16 mathematics teaching, bringing variety to the Pure Mathematics and Statistics curriculum areas within AS/A2 mathematics and IB. The material is arranged by topic and enables teachers to move away from an over-emphasis on routine textbook-based work. Hints and suggestions are included to make it clear where the ideas may lead as well as additional material for extension.



**Mary Pardoe** @PardoeMary · 20h

Replying to @PardoeMary @mr\_man\_maths and @colinfoster77

... this is a task from/in it ...

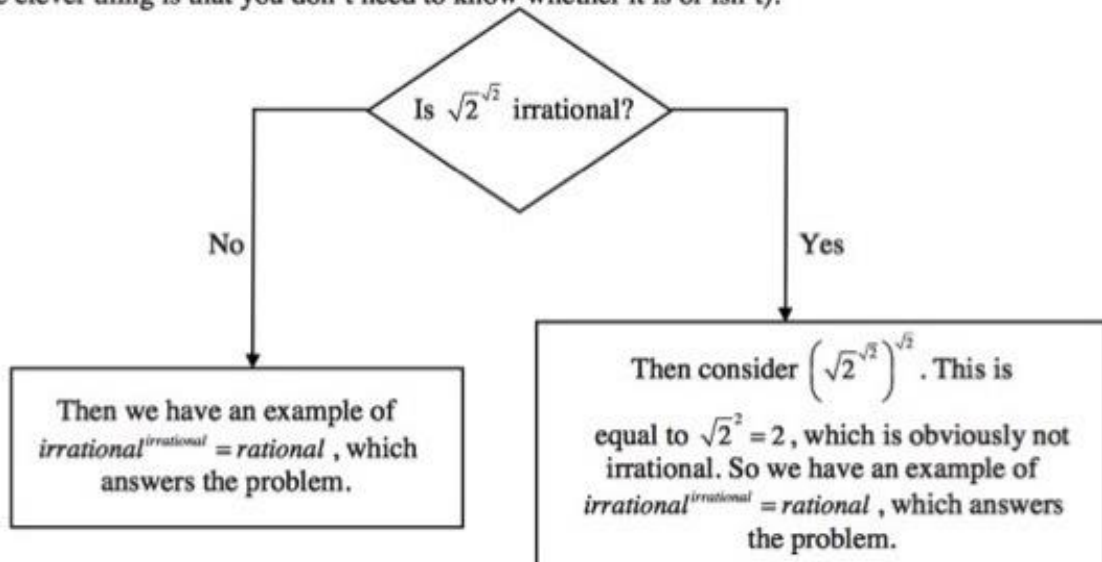
#mathscpdchat

$$\sqrt{2}^{\sqrt{2}}$$

- Do you think that it is possible to raise an irrational number to an irrational power and get a rational answer?

It *is* possible.

Suppose for example that  $a = \sqrt{2}^{\sqrt{2}}$  and  $b = \sqrt{2}$ . Perhaps  $\sqrt{2}^{\sqrt{2}}$  is irrational (in fact it is, but the clever thing is that you don't need to know whether it is or isn't).



So either way the statement is proved.

This clever line of reasoning is an example of a 'non-constructive proof'. Often proving that numbers are irrational is very difficult. No-one knows whether  $\pi^{\pi}$ ,  $e^e$  or  $\frac{e}{\pi}$ , for instance, are irrational.



**Matt Man** @mr\_man\_maths · Mar 21

...

Replying to @PardoeMary and @colinfoster77

Proofs! Yes, that is something that students struggle in general. I taught proof by contradiction two weeks ago - and let's say the students didn't particularly like it... Wonder how others approach this topic?



**Joanne Green** @MsJoanneGreen · Mar 21

...

@mr\_man\_maths #mathscpdchat I write proof for everything. I apologise to the pupils for doing it and say that it's the only place that I can begin. I then go through it and have them do it on the board too. It seems to work, though it's slow due to the 1-2-1 aspect.



**Matt Man** @mr\_man\_maths · Mar 21

...

Replying to @mr\_man\_maths

To stretch your A Level pupils, this resource by MadAsMaths - he was a brilliant man!

[madasmaths.com](http://madasmaths.com)





**Milena Lee** @MathsSecondary · Mar 21

...

Replying to @mr\_man\_maths

I made quite a few of his questions and worked solutions into PPTs to teach with and students use him for revision too. Fab stuff!

[#mathscpdchat](#)



**Matt Man** @mr\_man\_maths · 20h

...

Replying to @mr\_man\_maths

I have also used [@naikermaths](#)  
[naikermaths.com/year-2-a-level...](http://naikermaths.com/year-2-a-level...)

And students really liked the format of these resources.

[#mathscpdchat](#)



**Matt Man** @mr\_man\_maths · 21h

...

Replying to @mr\_man\_maths

Not forgetting the 5 a day from [@Corbettmaths](#)

More useful for Year 12s though:

[corbettmaths.com/5-a-day/core1/](http://corbettmaths.com/5-a-day/core1/)

[#mathscpdchat](#)

## January

1st January [Core 1](#)

2nd January [Core 1](#)

3rd January [Core 1](#)

[corbettmaths.com](http://corbettmaths.com)

5-a-day Core 1

These are the 5-a-day for the old AS-level Core 1. I had planned to remove from the website but some teachers have asked for them to ...



**Matt Man** @mr\_man\_maths · 20h ...

Replying to @mr\_man\_maths

From the @AQAMaths exam board:  
[allaboutmaths.aqa.org.uk/1376](http://allaboutmaths.aqa.org.uk/1376)

Lots of lovely topic tests.

#mathscpdchat



**Matt Man** @mr\_man\_maths · Mar 21 ...

Replying to @mr\_man\_maths

For @OCR\_Maths @MEIMaths B:

[ocr.org.uk/qualifications..](http://ocr.org.uk/qualifications..)

#mathscpdchat



**Matt Man** @mr\_man\_maths · Mar 21 ...

Replying to @mr\_man\_maths

For @OCR\_Maths A:

[ocr.org.uk/qualifications..](http://ocr.org.uk/qualifications..)

#mathscpdchat



**Matt Man** @mr\_man\_maths · Mar 21 ...

Replying to @mr\_man\_maths

From @EmporiumMaths Edexcel:

[mathsemporium.com/category/gce-a..](http://mathsemporium.com/category/gce-a..)

#mathscpdchat



**Ticky Vanner** @marmite1200 · Mar 21 ..

Replying to @mr\_man\_maths

BSG topic resources from @EmporiumMaths #mathscpdchat



**Matt Man** @mr\_man\_maths · Mar 21 ...

Replying to @marmite1200 and @EmporiumMaths

Yes! They released some new materials for this year and it was so useful for both A Level Maths and Further Maths. Thanks @marmite1200

#mathscpdchat



**Matt Man** @mr\_man\_maths · 20h ...

Replying to @mr\_man\_maths

This resource by @westiesworkshop

[westiesworkshop.com/past-paper-que...](http://westiesworkshop.com/past-paper-que...)

Loads of wonderful exam questions by topic for Maths and Further Maths  
- Core Pure, FP1 and FM1

#mathscpdchat



**Matt Man** @mr\_man\_maths · Mar 21

...

Replying to @mr\_man\_maths

And @ALMathsRevision:

[alevelmathsrevision.com/maths-category...](https://alevelmathsrevision.com/maths-category/)

#mathscpdchat



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[alevelmathsrevision.com](https://alevelmathsrevision.com)

A Level Maths Exam Questions By Topic | OCR, MEI, Edexcel, AQA

Our A Level Maths questions by topic make an ideal way to familiarise yourself with A Level Maths topics before attempting past papers.



**Matt Man** @mr\_man\_maths · Mar 21

...

Replying to @mr\_man\_maths

Physics and Maths Tutor:

[physicsandmathstutor.com/a-level-maths-...](https://physicsandmathstutor.com/a-level-maths-...)



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[physicsandmathstutor.com](https://physicsandmathstutor.com)

A-level Maths Papers - PMT

Maths and Further Maths A-level past papers, mark schemes and worksheets. Solution banks for textbooks. Papers from AQA, CIE, ...



**Matt Man** @mr\_man\_maths · Mar 21



Replying to @mr\_man\_maths

And from @crashMATHS\_CM:  
[crashmaths.com/a-level-practi...](https://crashmaths.com/a-level-practi...)  
#mathscpdchat

crashmaths.com

A Level Practice Papers

AS/A Level GCE Practice Papers Learning resources > Practice papers

> Question Countdown > Revision Sessions \*Book Now\* >



**Matt Man** @mr\_man\_maths · Mar 21



Replying to @mr\_man\_maths

And this resource by @ExamQbyMrWatts  
[examq.co.uk](https://examq.co.uk)  
#mathscpdchat



**Matt Man** @mr\_man\_maths · Mar 21



Replying to @mr\_man\_maths

These resources from @Miss\_Jethwa are also wonderful:  
[jethwamaths.com/mathematics-a-...](https://jethwamaths.com/mathematics-a-...)  
#mathscpdchat



**Matt Man** @mr\_man\_maths · Mar 21



Replying to @mr\_man\_maths

Moving to videos:  
[youtube.com/@BicenMaths/vi...](https://youtube.com/@BicenMaths/vi...)  
@BicenMaths provides great advice.  
#mathscpdchat



youtube.com

Bicen Maths

👋 I'm Mr Bicen, and I've been teaching maths for 11 years now. My channel features Edexcel A-Lev...



**Matt Man** @mr\_man\_maths · Mar 21



Replying to @mr\_man\_maths

Not forgetting @mathsgenie:  
[mathsgenie.co.uk/newalevel.html](https://mathsgenie.co.uk/newalevel.html)  
#mathscpdchat



**Matt Man** @mr\_man\_maths · Mar 21

Replying to @mr\_man\_maths

And finally @tm\_maths:  
[youtube.com/@tm\\_maths](https://youtube.com/@tm_maths)  
#mathscpdchat



youtube.com  
Tayyub Majeed



**Grace** @missjenmaths · Mar 21

Replying to @mr\_man\_maths

@misscjmaths some useful resources in this thread for y13s?

The last tweet shown above concludes the record of tweets that were in response to the host's third main question, all of which were direct replies to that third main question, not parts of conversations.

However, the following brief 'conversation', which was not in response to any of the host's main questions, or related to any other conversation, and was conducted on Joanne's part by means of quote-retweets, occurred during the chat:



**Joanne Green** ✓ @MsJoanneGreen · Mar 21

@mr\_man\_maths #mathscpdchat My apologies for being late. Our pupils are not ready to learn A-Levels. They find the entire system hilarious. There are some clever pupils, but they are not at the right stage just yet. They are working, some of them, but not ready really 😞



**Matt Man** @mr\_man\_maths · Mar 21

Replying to @MsJoanneGreen

No problems Joanne! So, I guess this is where Core Maths comes in handy? #mathscpdchat



**Joanne Green** ✓ @MsJoanneGreen · Mar 21

@mr\_man\_maths #mathscpdchat why Core Maths?



**Matt Man** @mr\_man\_maths · Mar 21

Replying to @MsJoanneGreen

It allows students to continue on with Maths post 16, but the qualification goes in a different direction to A Level Maths. I discussed this with @Just\_Maths a number of times regarding some of our students. Staffing and familiarity is the issue though.  
#mathscpdchat

There were no replies to Matt's fourth, and last, main question, or to his own reply to it ...



**Matt Man** @mr\_man\_maths · Mar 21



Time really flies!  
Keep the contributions coming!  
Here is the fourth and final question:  
What strategies are teachers using for revision? After school sessions?  
Easter sessions? Whitsun half term sessions? Which are most effective?  
[#mathscpdchat](#)



**Matt Man** @mr\_man\_maths · Mar 21



Replying to [@mr\\_man\\_maths](#)  
I'll start off.  
After school revision - yes Tuesdays after school. Around half our cohort regularly attend.  
Easter session - we'll do one session.  
Whitsun - tbc  
Are they effective? Those attend yes, though the hard to reach ones just don't seem to attend.  
[#mathscpdchat](#)

... because both tweets were posted towards the end of the hour while people were still busy replying to previous questions and conversations.

This was the host's closing message:



**Matt Man** @mr\_man\_maths · Mar 21



Wow, that hour flew quickly!  
Thank you so much for your contributions to tonight's [#mathscpdchat](#)  
Let the discussions keep coming in and thank you to [@NCETM](#)  
[@mathscpdchat](#) for allowing me the opportunity to host!