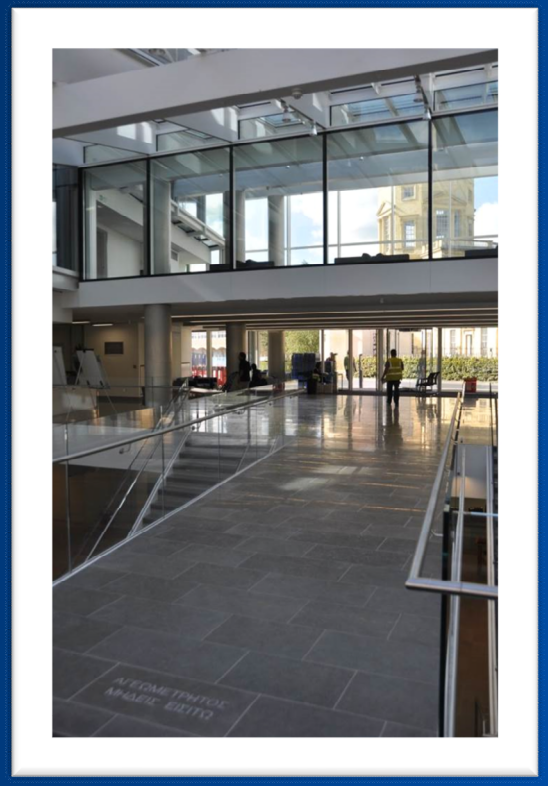
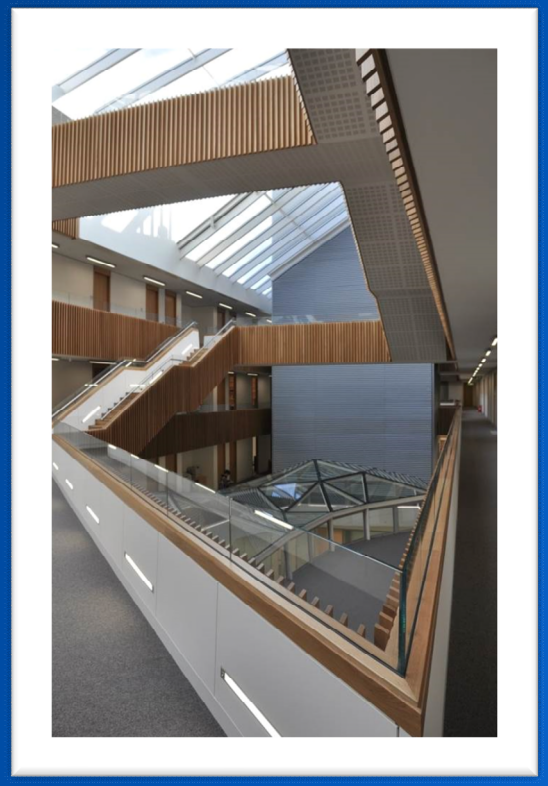
Mathematics at Oxford

Oxford Mathematics Online Open Day

May 2025

Andrew Wiles Building





Oxford Mathematics Courses

Joint applications for Maths/Maths&Stats

(choice midway through year 2)

Degree	Years	Students
BA Mathematics	3	~190 with ~90 in 4th year
MMath Mathematics	4	
BA Maths & Statistics	3	~ 25 per year
MMath Maths & Statistics	4	
BA Maths & Philosophy	3	~ 25 per year
MMathPhil Maths & Philosophy	4	
BA Maths & Computer Science	3	~25 per year
MMathCompSci Maths & Comp	4	

Maths Course Structure: Year 1

First year has core courses:

- Linear Algebra
- Group Theory
- Analysis
- Integration
- Vector Geometry
- Multivariable Calculus
- Partial Differential Equations
- Fourier Series
- Dynamics
- Probability
- Statistics

Core courses give everyone a solid foundation for subsequent years, and introduce methods that can be generalized and abstracted.

Maths Course Structure: Later Years

Options begin in Year 2 and include traditional areas of maths as well as new growing areas and links with other subjects:

- Topology, Number Theory, Functional Analysis,...

but also applications of mathematics

- Mathematical Biology, Relativity, Quantum Theory, Machine Learning, Network Theory, Communication Theory,...

as well as investigating possible careers:

- Actuarial Science, Financial Derivatives, Ambassadors Scheme

Can build a broad base of mathematical knowledge or specialize in one particular field.

Typical Week

- Ten 50-minute lectures in Mathematical Institute
- One problem sheet per 2-4 lectures (provided by lecturer)
- Your solutions to problem sheets are marked and discussed in college tutorials
- Self-study, research in libraries and working with fellow students are crucial parts of university study
- All takes ~ 40 hours a week... but leaves time for extra-curricular activities (sport, music, theatre etc.)

More on tutorials and classes

Years 1 and 2

- Typically:
- 2 or 3 paired tutorials a week with college tutors
- Flexible approach to teaching allows us to treat students from different educational backgrounds as individuals

Years 3 and 4

- Intercollegiate classes as options become more specialised

Assessment

Year 1

- Five 2½-hour exams at the end of the first year
- Students also do two computational projects

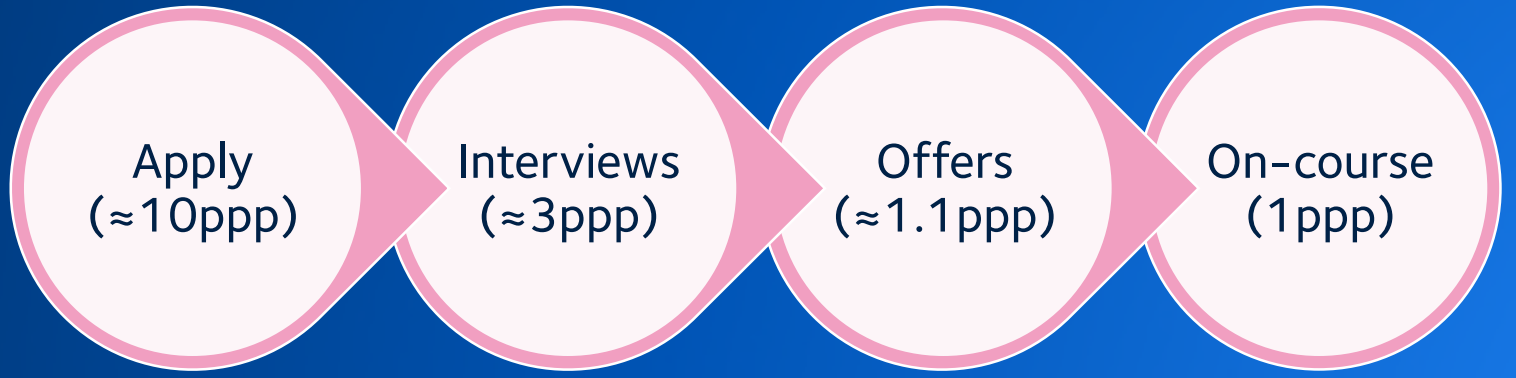
Years 2 – 4

- Mainly exams, but compulsory dissertation in 4th year & some courses examined via project

Admissions

Why?

- We're lucky to have a lot of applicants
- We have a limited number of places on the course
- We want the students with the most potential to succeed



UCAS Application

UCAS Application

- 15 October 2025 is the UCAS deadline
- Write a personal statement
- Details of qualifications you've taken or will take
- Your UCAS referee predicts grades for qualifications not yet completed

Mathematics Admissions Test

Mathematics Admissions Test

- 2 ½ hours
- 25 multiple-choice questions, two longer questions (same format as 2024). No change to syllabus, so past papers are still good practice.
- www.maths.ox.ac.uk/r/mat

H. How many distinct solutions does the following equation have?

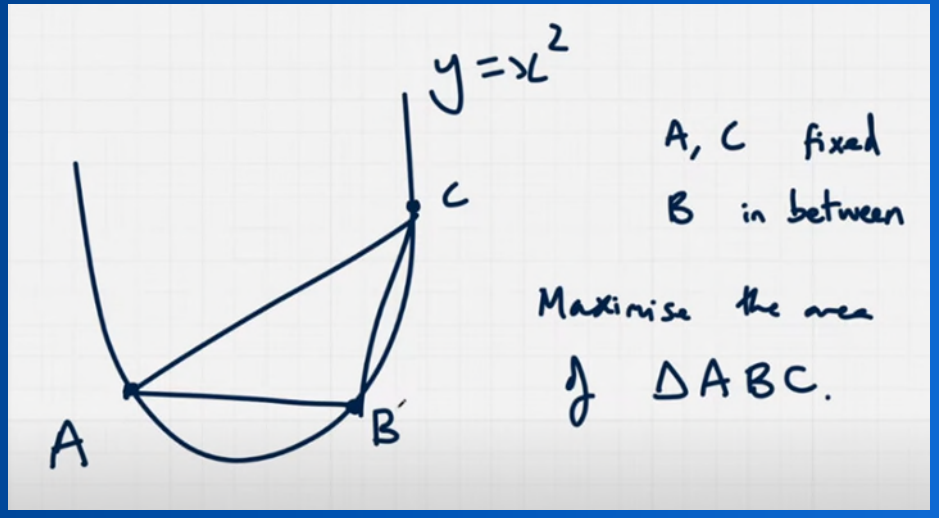
$$\log_{x^2+2}(4 - 5x^2 - 6x^3) = 2$$

(a) None, (b) 1, (c) 2, (d) 4, (e) Infinitely many.

Interviews

Interviews

- Early December
- Academic in nature
- Online
- We'll ask Maths questions to Maths applicants!



Standard Conditional Offers

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Maths / Maths & Statistics, Maths & Philosophy;

- (A-level) A*A*A with A*s in Maths & Further Maths
- (IB) 39 with 7,6,6 at HL (7 in HL Maths)
- (Advanced Highers) AAB/AA with A in Maths

Maths & Computer Science;

- A*AA with A in Maths. If Further Mathematics is taken, then including A*A between Mathematics and Further Mathematics; otherwise including A* in Mathematics.
- (IB) 39 with 7,6,6 at HL (7 in HL Maths)
- (Advanced Highers) AAB/AA with A in Maths

Offers – FAQs

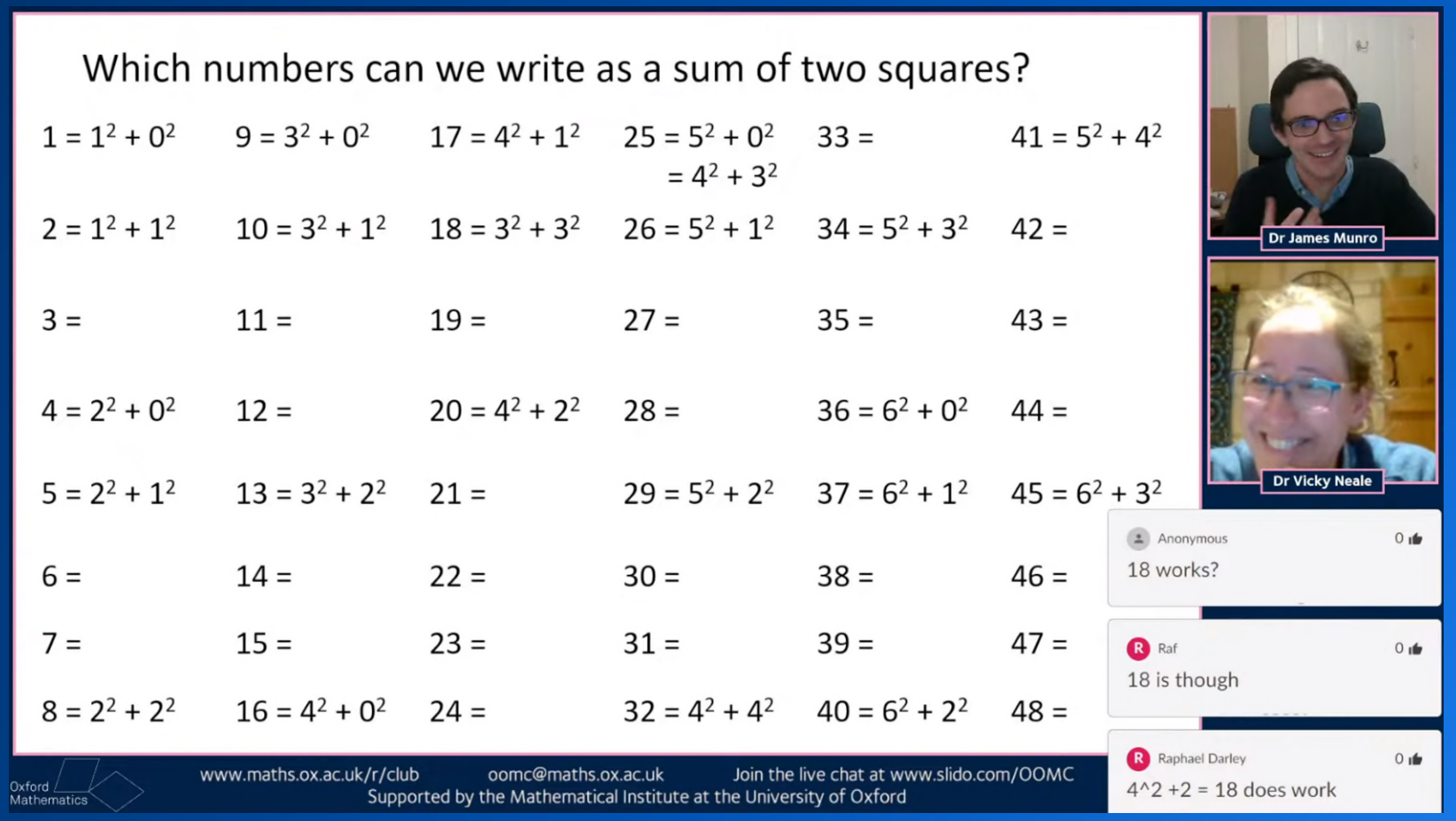
- If taking four A-levels incl. Maths and Further Maths
  - OK! Offer still likely to be based on three, and might specify which.
- If taking A-level Maths in Y12 and Further Maths in Y13
  - OK! A* in Y12 would usually be counted towards the standard offer, and we would still ask for Further Maths plus one other A-level.
- If not taking A-level Further Maths because it wasn't available
  - OK! We can recommend some extra maths that you might like.
- If not taking A-level Further Maths but it was available
  - Find out if you can take some A-level Further Maths.

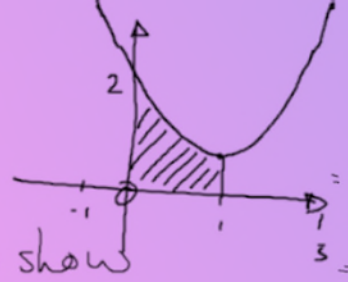
Support from Oxford

Support from Oxford

- MAT Livestream www.maths.ox.ac.uk/r/matlive
- Oxford Online Maths Club www.maths.ox.ac.uk/r/club
- Some lectures online on our YouTube channel
- All our lecture notes online www.courses.maths.ox.ac.uk
- Look out for other events

Oxford Online Maths Club





Want to show

$$\frac{2\pi(p^2+q^2)}{4pq} \geq \pi$$

$$= \left[\frac{x^5}{5} - \frac{2x^3a}{3} + a^2x\right]_0^1$$

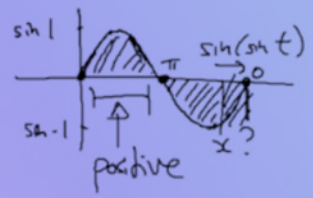
$$= \frac{1}{5} - \frac{2}{3}a + a^2$$

$$= \left(a - \frac{1}{3}\right)^2 + \frac{1}{5} - \frac{1}{9}$$

Happy

quadratic in a

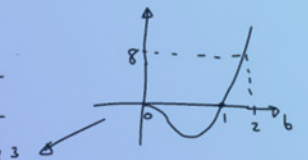
$$\int_0^x \sin(\sin t)\,dt = 0$$



$b^2 - 2b - 1 \leq 0$

$(b-1)^2 - 2 \leq 0$

$(b-1)^2 \leq 2$



$b^3 + 3 = a^2 - 5$

$b^3 + 3 = b^4 - 5$

$8 = b^4 - b^3$

$8 = b^3(b-1)$

$b = 2$ works

(anything else?)

nothing else!

$a = 4$

$c = 11$

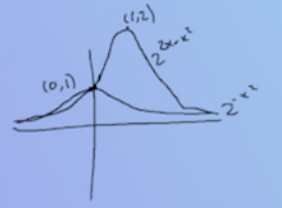
$n \to n+1$

$a_{n+1} = (n+1)^2 - (n+1) = n^2 + n$

$(4\sin^2 x + 4\cos x + 1)^2$

$(4(1-\cos^2 x) + 4\cos x + 1)^2$

$(4\cos^2 x - 4\cos x - 5)^2$



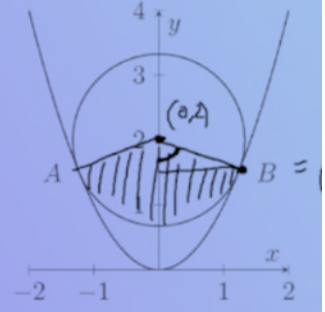
MAT Livestream

www.maths.ox.ac.uk/r/matlive

$\int g - \int f$

or

$\int g - f\,dx$



$9x^4 - 12x^2 + 7$ $\quad u = \cos^2 x$ $\quad 9u^2 - 12u + 7$ $\quad 0 \leq u \leq 1$

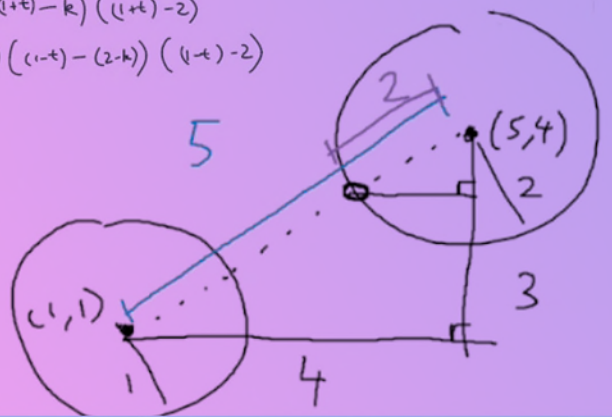
$(3u-2)^2 + 3$ $\quad 9(\cos x)^4 - 12(\cos x)^2 + 7$

$$\frac{3 \pm \sqrt{9+4k}}{2}$$

with +, definitely positive

LHS: $(1+t)\left((1+t)-k\right)\left((1+t)-2\right)$

RHS: $-(1-t)\left((1-t)-(2-k)\right)\left((1-t)-2\right)$



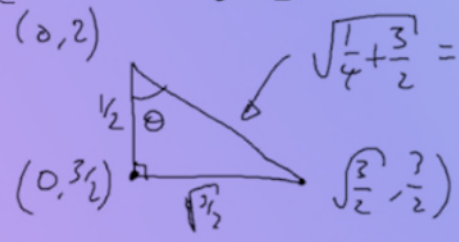
$1 = x_1 = A + B + C$

$3 = x_2 = A + 2B + 4C$

$6 = x_3 = A + 3B + 9C$

Sim. eqns

Pythag



$\theta = \tan^{-1}\left(\frac{\sqrt{3}/2}{1/2}\right)$

Find out more

Find out more

- Department prospectus at www.maths.ox.ac.uk/r/prospectus
- University prospectus at www.ox.ac.uk/digital-prospectus
- Email undergraduate.admissions@maths.ox.ac.uk