Supporting Achievement in GCSE Maths

- Brief outline of Y11 maths in school between now and May
- Importance of being prepared
- How much and what, should they do?
- Revision sources

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Maths in School

- All classes will finish covering new content by February half term (exception being sets 1 and 2 as they have had additional Extended Maths content)
- Following completion of the scheme of work, lessons will follow a sequence of assessment, review and revision
- In order to ensure effective revision can be planned and support targeted appropriately, we will be running a program of assessments between now and May.
- The aim of this is to:
  - ✓ Provide staff with areas to focus revision sessions on when the time comes
  - ✓ Provide students with their own areas of focus for independent revision
  - ✓ Provide students with practise at exam timing and exam technique
  - ✓ Ensure students are FULLY prepared for the Summer exams
- The schedule has been shared with students via Teams, but they will take place every Wednesday Week B (for S and T band classes) or Friday Week B (for M band classes)
- Students should focus on Summer Exam Revision, NOT cram revising for these assessments

Maths support in School

- Lessons
- Maths Clinic – Wednesday/Thursday 12:15 - 12:45
- Quiet study room – F12: Monday/Wednesday/Thursday lunchtimes
- Intervention sessions for selected students
- Study support sessions
- Homework

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Being Prepared - Equipment

All equipment can be bought from the school library if needed

(buy calculators through the maths department)

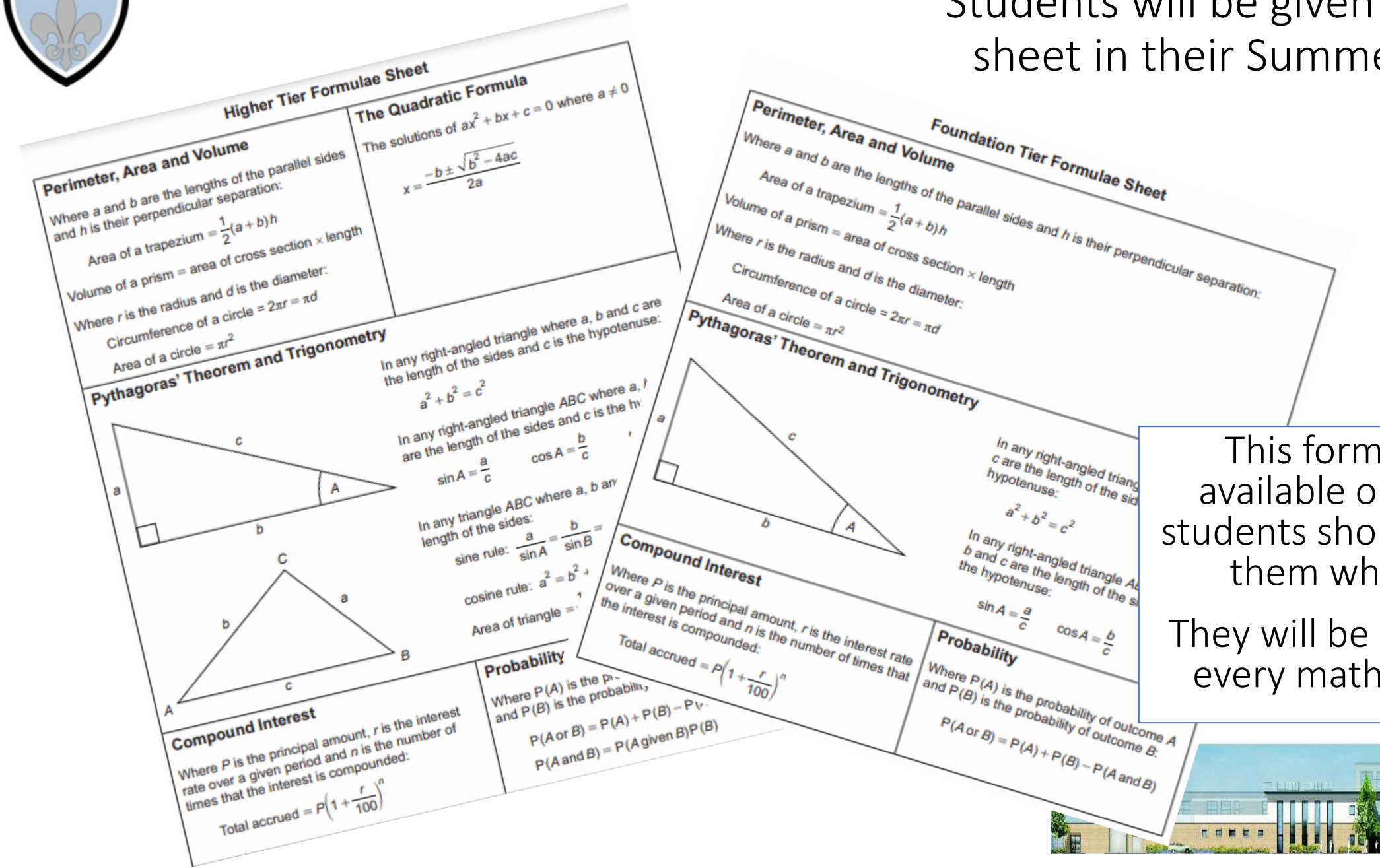
School compasses are well used, so loosen over time and not construct shapes properly

Students need to know the functions of their own calculator

School protractors are well used so the scale might be worn, or scratches on the plastic might make it hard to read accurately

Being Prepared - Formulae

Students will be given a formula sheet in their Summer exams



Higher Tier Formulae Sheet

Perimeter, Area and Volume

Where a and b are the lengths of the parallel sides and h is their perpendicular separation:

Area of a trapezium $= \frac{1}{2}(a+b)h$

Volume of a prism = area of cross section × length

Where r is the radius and d is the diameter:

Circumference of a circle $= 2\pi r = \pi d$

Area of a circle $= \pi r^2$

The Quadratic Formula

The solutions of $ax^2 + bx + c = 0$ where $a \neq 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Pythagoras' Theorem and Trigonometry

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

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

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

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

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

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

cosine rule: $a^2 = b^2 +$

Area of triangle $=$

Compound Interest

Where P is the principal amount, r is the interest rate over a given period and n is the number of times that the interest is compounded:

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

Probability

Where $P(A)$ is the p
and $P(B)$ is the probabili

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

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

Foundation Tier Formulae Sheet

Perimeter, Area and Volume

Where a and b are the lengths of the parallel sides and h is their perpendicular separation:

Area of a trapezium $= \frac{1}{2}(a+b)h$

Volume of a prism = area of cross section × length

Where r is the radius and d is the diameter:

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Pythagoras' Theorem and Trigonometry

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In any right-angled triangle AB
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the hypotenuse:

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

Compound Interest

Where P is the principal amount, r is the interest rate over a given period and n is the number of times that the interest is compounded:

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

Probability

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

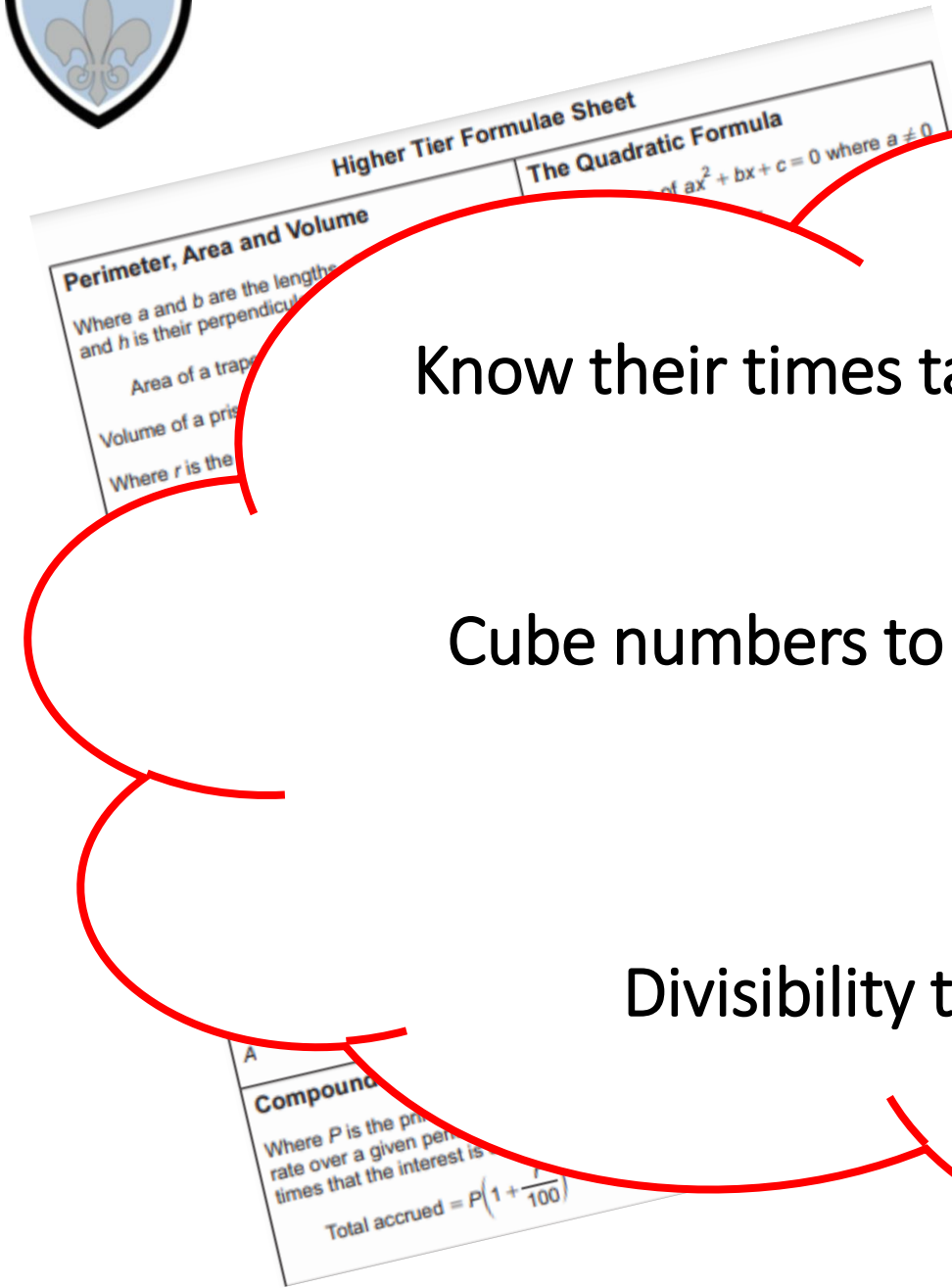
$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$

This formula sheet is available on Teams, and students should have it with them whilst revising

They will be given a copy in every maths assessment

Being Prepared - Formulae

Students will be given a formula sheet in their Summer exams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The Quadratic Formula

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A

Compound

Where P is the pri
rate over a given per
times that the interest is

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

Know their times tables

Square Numbers to 15^2

Cube numbers to 10^3

Prime numbers less than 50

Divisibility tests

with
sing

be given a copy
to their books

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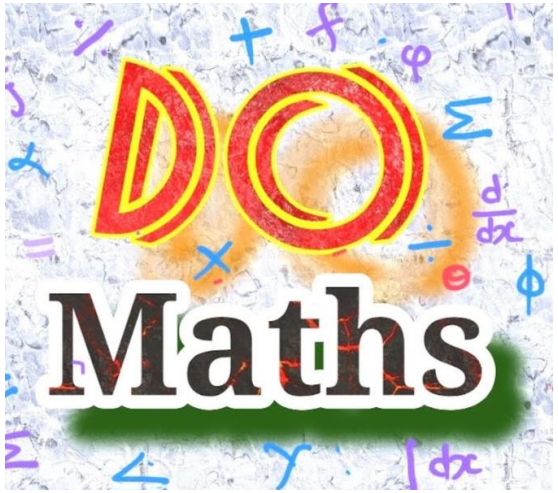
Independent Revision

The best way to revise maths is to



15-20 minutes daily, not a 2-hour stretch once a week

Focus on content, not exam practice (until Easter)

Independent Revision

WEEK A

Wed	Thur	Fri	Sat	Sun	Mon	Tue
School: Review mock exam (get QLA) 10 min Corbettmaths 5-a-day	School: Maths Clinic 20 min Sparx Homework	10 min Sparx homework 10 min Corbettmaths 5-a-day	20 min Sparx Homework	10 min Sparx homework 10 min Corbettmaths 5-a-day	20 min Revise mean from frequency table	10 min Revise Divide Fractions 10 min Corbettmaths 5-a-day

WEEK B

Wed	Thur	Fri	Sat	Sun	Mon	Tue
School: Complete mock exam 10 min Corbettmaths 5-a-day	School: Maths Clinic 20 min Sparx Homework	10 min Revise percentage change 10 min Corbettmaths 5-a-day	20 min Sparx Homework	20 min Revise histograms	10 min Sparx homework 10 min Corbettmaths 5-a-day	10 min Sparx homework 10 min Corbettmaths 5-a-day

Independent Revision

Mrs …… is going to do a revision lesson on this with the whole class

Don't need to revise this (keep checking when it comes up on future mocks)

Mr …… said most people got this correct, but I have got it wrong – add to independent revision timetable

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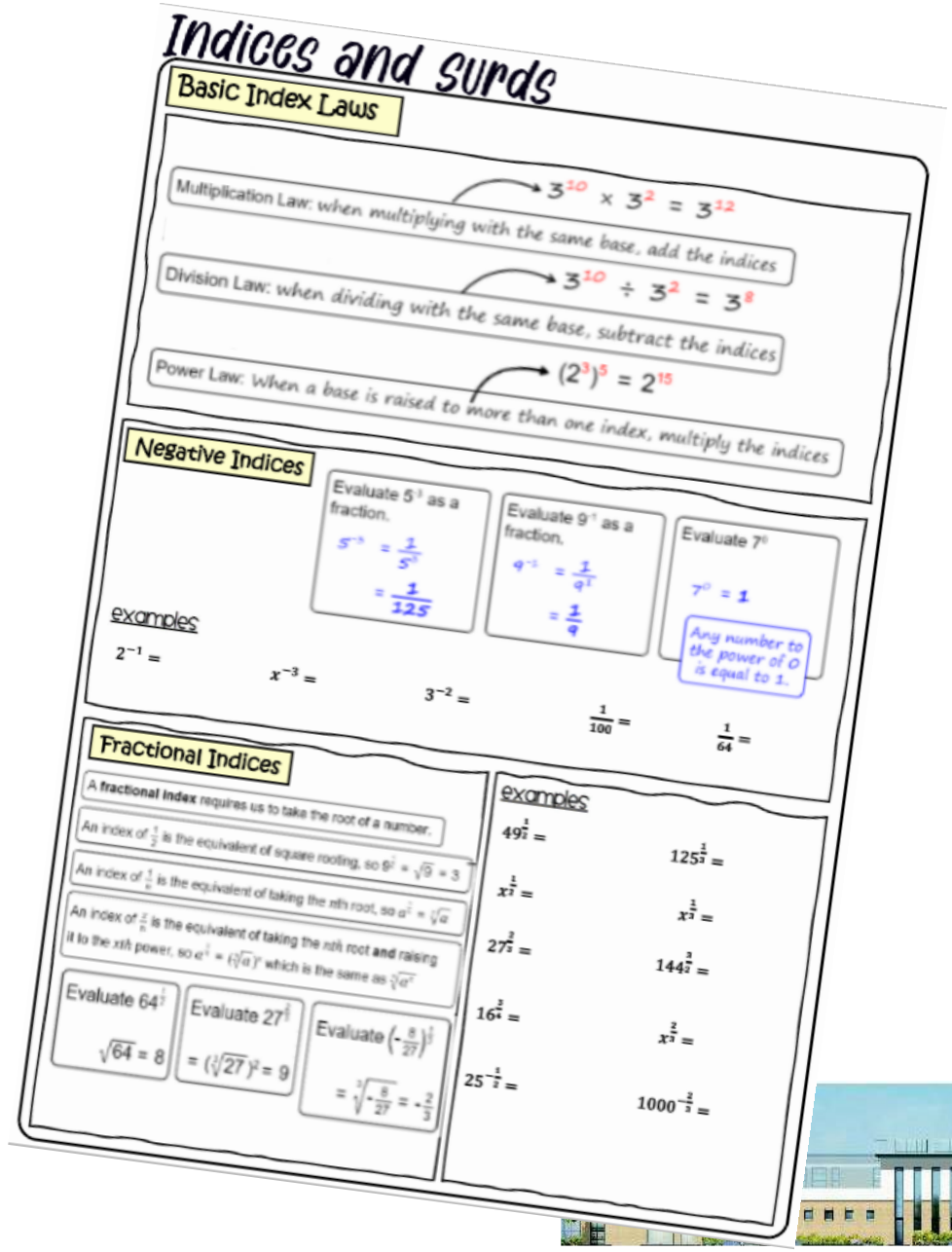
Knowledge Organisers

Year 11

Knowledge Organiser 2

Mathematics

Topic	Pages
Number Theory	1-2
Fractions	3-6
Percentages	7-10
Algebraic Manipulation	11-14
Analysing Data	15-17



Sparx Maths

- MASSIVE database of videos to support independent learning and revision, with accompanying, instantly marked quizzes to assess understanding
- **Individualised** tasks set each week to revise, consolidate and extend learning

https://www.sparxmaths.uk/

Revision Sources

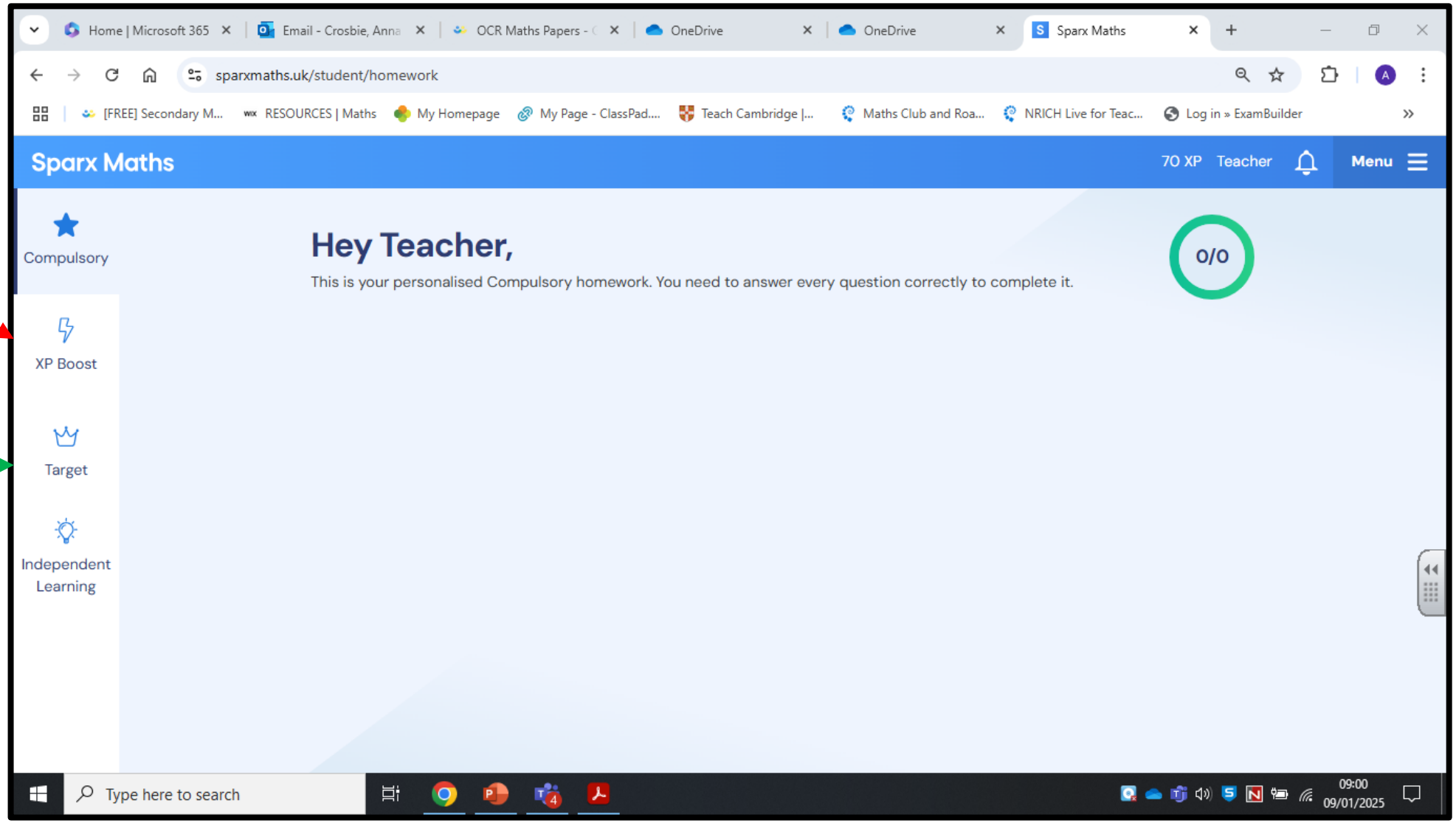
- Sparx Maths
  - XP Boost
  - XP target
  - Independent Learning
- Corbett Maths
  - 5-a-day
  - Topic based revision
  - Exam paper practise (later)
- OnMaths
  - Topic based revision
  - Exam paper practise (later)
- Maths Genie
  - Topic based revision

Sparx Maths

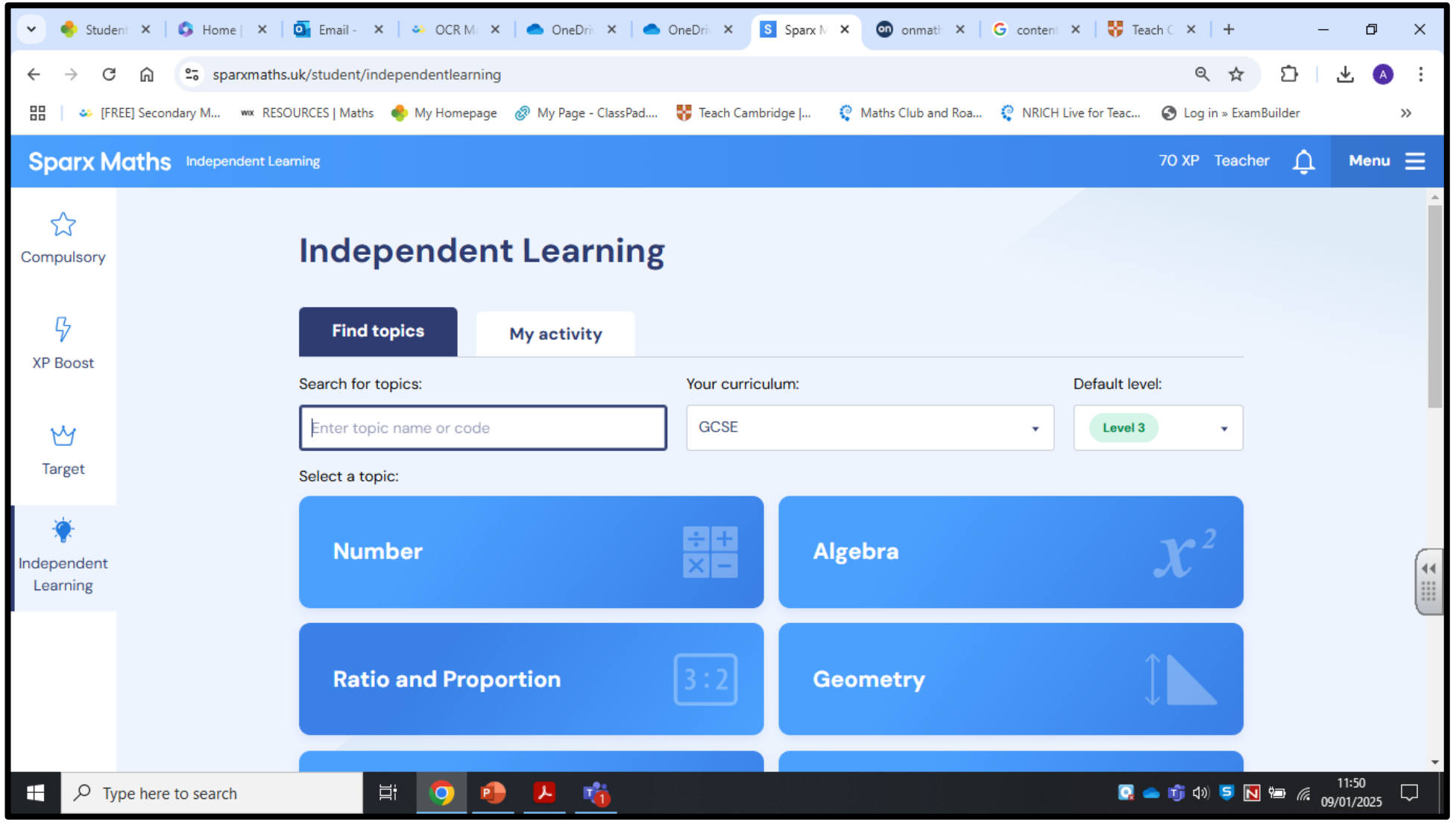
Same topics and similar tasks as that week's compulsory homework

Same topics but more challenging tasks as that week's compulsory homework

Tasks for every single topic on the curriculum, with a search feature to find a particular topic



Sparx Maths


sparxmaths.uk/student/independentlearning
Sparx Maths
Independent Learning
70 XP
Teacher
Menu
Compulsory
XP Boost
Target
Independent Learning
Independent Learning
Find topics
My activity
Search for topics:
Enter topic name or code
Your curriculum:
GCSE
Default level:
Level 3
Select a topic:
Number
Algebra
Ratio and Proportion
3 : 2
Geometry
Type here to search
11:50
09/01/2025

- Brief outline of Y11 maths in school between now and May
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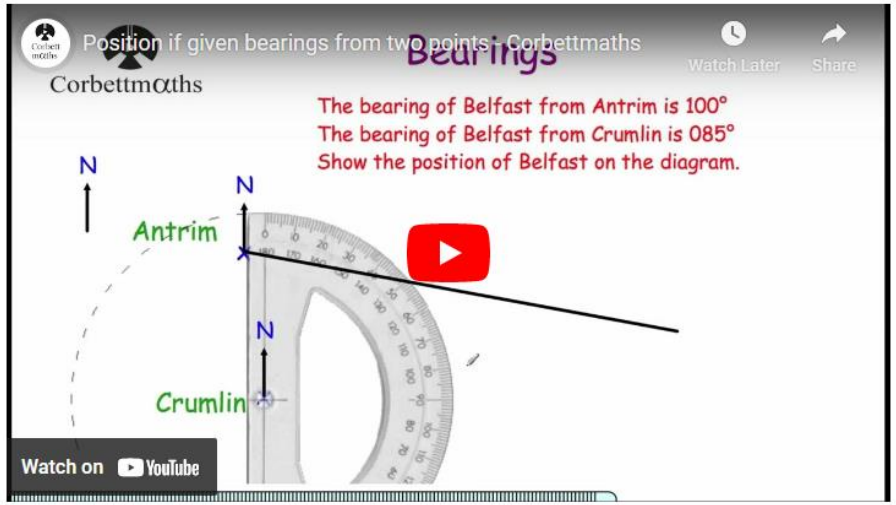
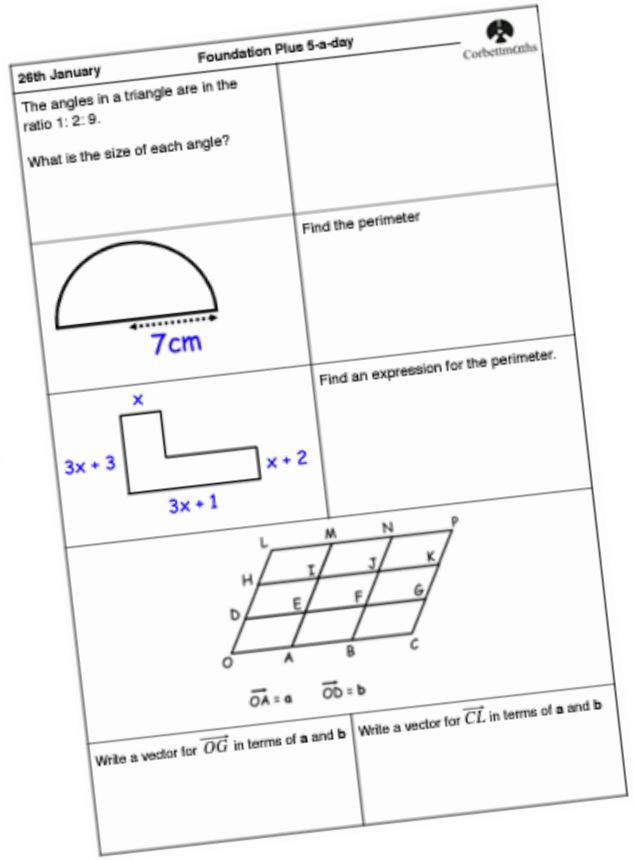
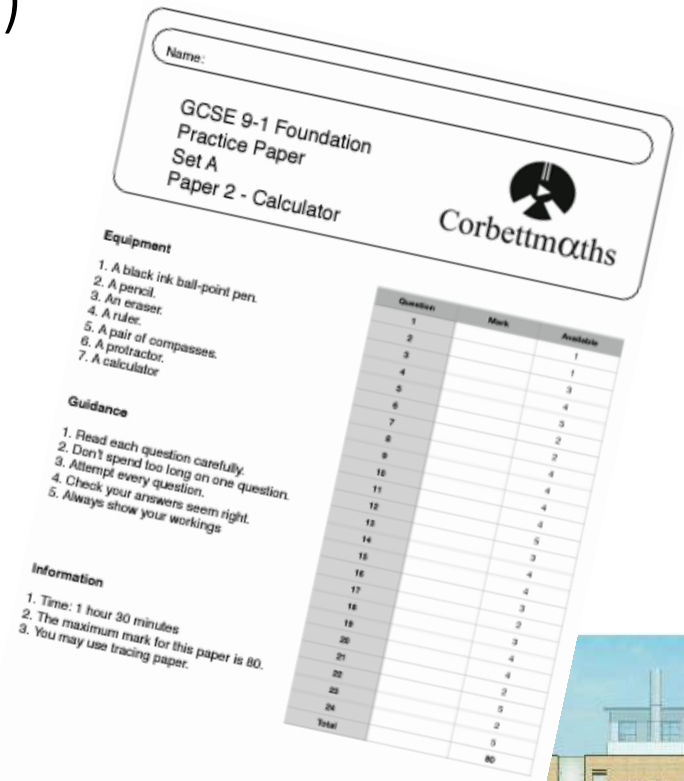
- Sparx Maths
- Corbett Maths/OnMaths
- Additional sources of revision support

Corbett Maths

- Videos, worksheets and exam questions (with solutions) for all topics on the GCSE syllabus
- Revision features:
  - 5-a-day *(ask your teacher for the most appropriate level)*
  - Practise Papers (for later!)



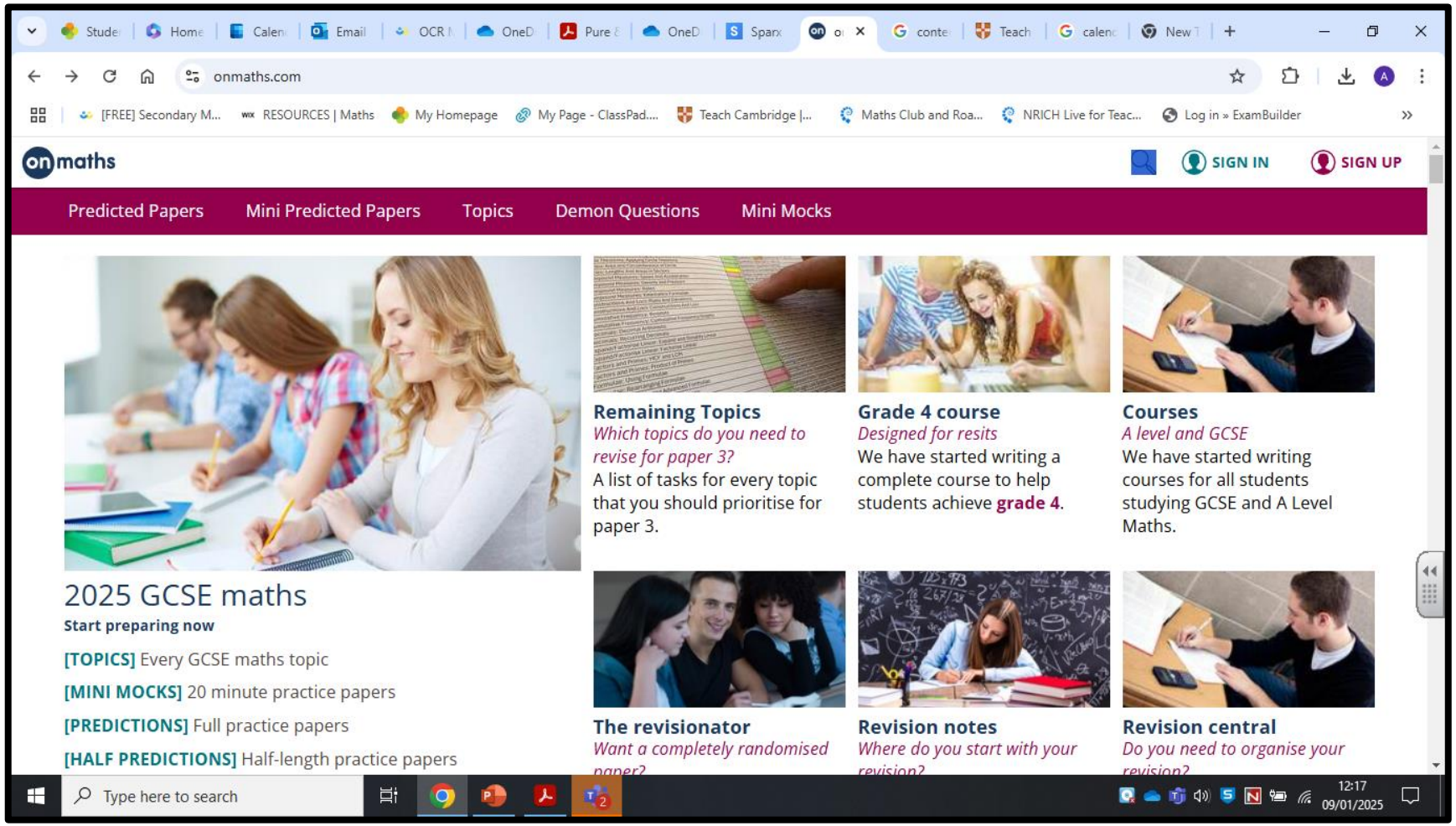




https://corbettmaths.com/

OnMaths

- Online self-marking revision tasks (and practise papers for later)

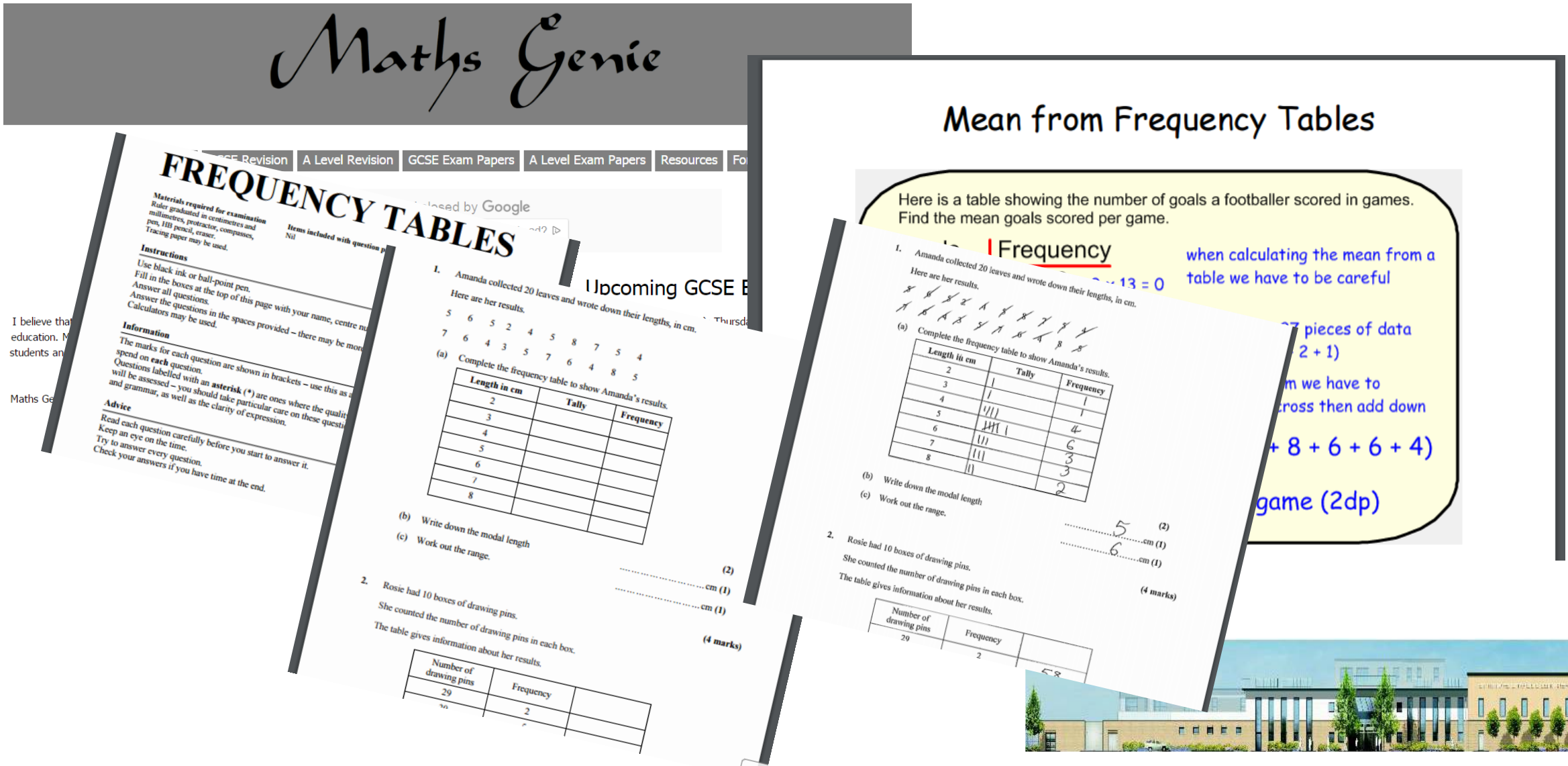


https://www.onmaths.com/

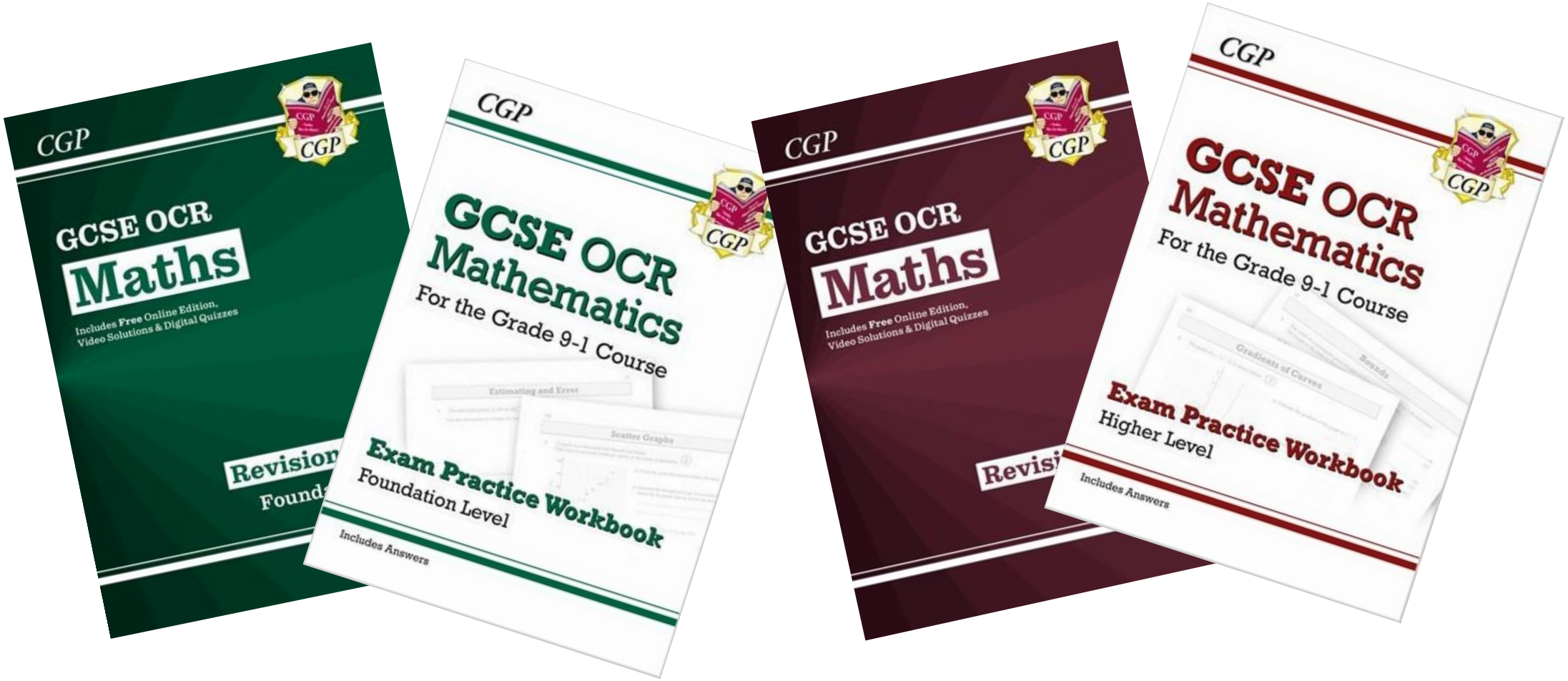
Maths Genie

http://www.mathsgenie.co.uk/

- Printable Revision notes, videos, topic based question booklets, old style exam papers



CGP Revision Guides/Workbooks



CGP Revision Guides/Workbooks

Ratios

Ratios are a pretty important topic — they can crop up in all sorts of questions, so you need to be prepared. If you understand the examples on the next three pages, you'll have a fighting chance in the exams.

Reducing Ratios to their Simplest Form (GRADE 2)

To reduce a ratio to a simpler form, divide all the numbers in the ratio by the same thing (a bit like simplifying a fraction — see p.12). It's in its simplest form when there's nothing left you can divide by.

EXAMPLE Write the ratio 15:18 in its simplest form.

For the ratio 15:18, both numbers have a factor of 3, so divide them by 3.

We can't reduce this any further. So the simplest form of 15:18 is 5:6.

$15:18 \xrightarrow{\div 3} 5:6$

A handy trick for the calculator papers — use the fraction button:

If you enter a fraction with the ▭ or a b/c button, the calculator automatically cancels it down when you press =. So for the ratio 8:12, just enter $\frac{8}{12}$ as a fraction, and you'll get the reduced fraction $\frac{2}{3}$. Now you just change it back to ratio form, i.e. 2 : 3. Ace.

The More Awkward Cases: (GRADE 3)

1) If the ratio contains decimals or fractions — multiply

For fractions, multiply by a number that gets rid of both denominators.

EXAMPLE Simplify the ratio 2.4:3.6 as far as possible.

1) Multiply both sides by 10 to get rid of the decimal parts.
2) Now divide to reduce the ratio to its simplest form.

$2.4:3.6 \xrightarrow{\times 10} = 24:36 \xrightarrow{\div 12} = 2:3$

2) If the ratio has mixed units — convert to the smaller unit

EXAMPLE Reduce the ratio 24 mm:7.2 cm to its simplest form.

1) Convert 7.2 cm to millimetres.
2) Simplify the resulting ratio. Once the units on both sides are the same, get rid of them for the final answer.

24 mm:7.2 cm
= 24 mm:72 mm
$\div 24$ = 1:3

3) To get to the form 1 : n or n : 1 — just divide

EXAMPLE Reduce 5:54 to the form 1:n.

Divide both sides by 5:

$5:54 \xrightarrow{\div 5} = 1:\frac{54}{5}$ or 1:10.8

The simpler the ratio the better as far as I'm concerned...

Whole number ratios are easy to simplify, but you need to make sure you can do the awkward cases too.

Q1 Simplify: a) 25:35 b) $\frac{9}{4}:\frac{15}{2}$ c) 8:18 to the form 1:n [4 marks] (GRADE 3)

Ratios

1 Give the ratio 16:240 in its simplest form. (GRADE 2)

....

[Total 2 marks]

2 In a class of 26 children, 12 are boys and 14 are girls. (GRADE 3)

a) What is the ratio of boys to girls? Give your answer in its simplest form.

....

[1]

b) In another class, the ratio of boys to girls is 2:3. There are 25 children in the class. How many girls are there?

....

[2]

[Total 3 marks]

3 Brian is making a fruit punch. He mixes apple juice, pineapple juice and cherryade in the ratio 4:3:7.

a) What fraction of the fruit punch is pineapple juice? (GRADE 3)

....

[1]

b) He makes 700 ml of fruit punch. What volume of each drink does he use? (GRADE 4)

Apple juice: .... ml

Pineapple juice: .... ml

Cherryade: .... ml

[3]

[Total 4 marks]

Thank You

Mrs Crosbie (Head of Maths)

Mrs Edgar (Deputy Head of Maths)

Miss Jackson (Deputy Head of Maths)