

# Welcome to A Level Mathematics and Further Mathematics

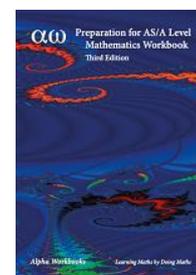
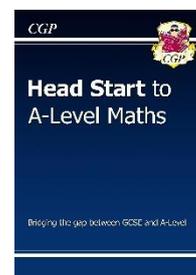
- **What you can read:**

*New Head Start to A-Level Maths:*

<https://www.cgpbooks.co.uk/secondary-books/as-and-a-level/maths/mbr71-new-head-start-to-a-level-maths>

*Preparation for AS/A Level Maths:*

<http://www.alphaworkbooks.co.uk/store/product/preparation-for-asa-level-maths>



*Other textbooks or General Interest Mathematics Books:* <https://mei.org.uk/books>

*More maths for GCSE Mathematics students:* <https://amsp.org.uk/students/gcse/more-maths>

*Pearson (Edexcel) A Level Maths Specification:* [Link](#)

- **What you can watch:**

HegartyMaths has been streaming A-Level prep sessions since 22<sup>nd</sup> April. You can find them here: <https://www.youtube.com/hegartymaths>

'The Jump': a series of 30 videos designed to bridge the gap between GCSE and A-Level Maths. The majority of videos are at the following link; the rest can be found by searching YouTube: <http://m4ths.com/gcse-to-a-level-bridge.html>

Below are some of the topics that you will be learning when you join us at Burnley College. Here are some videos that link to areas of those topics:

- Laws of Indices: <https://www.drfrostmaths.com/videos.php?skid=193>
- Solving Quadratic Equations: <https://www.drfrostmaths.com/videos.php?skid=196>
- Coordinate Geometry: <https://www.drfrostmaths.com/videos.php?skid=219>
- Algebraic Fractions: <https://www.drfrostmaths.com/videos.php?skid=406>

- **What are some of the topics and skills that you will cover:**

Below are some of the topics and skills that we will cover in September and October.

Topics	Breakdown
Algebraic Techniques (mostly GCSE revision – you need to be highly proficient with these)	<ul style="list-style-type: none"> <li>• Expanding brackets, simplifying expressions, collecting 'like terms'</li> <li>• Laws of indices</li> <li>• Surds</li> <li>• Rationalising the denominator</li> </ul>

Quadratics (again – mostly GCSE revision so you need to be highly fluent in these skills)	<ul style="list-style-type: none"> <li>• Factorising</li> <li>• Completing the square (CTS)</li> <li>• Solving quadratic equations</li> <li>• Max/Min values of quadratic functions</li> <li>• The discriminant</li> <li>• Sketching quadratic graphs</li> <li>• Modelling with quadratics</li> </ul>
Equations and Inequalities (there is a fair bit of GCSE overlap here too)	<ul style="list-style-type: none"> <li>• Linear simultaneous equations <ul style="list-style-type: none"> <li>○ Elimination method</li> <li>○ Substitution method</li> </ul> </li> <li>• Quadratic simultaneous equations</li> <li>• Simultaneous equations on graphs</li> <li>• Linear inequalities</li> <li>• Quadratic inequalities</li> <li>• Inequalities with <math>x</math> in the denominator</li> <li>• Inequalities on graphs</li> </ul>
Graphs and Transformations (you will have met some of these in GCSE Maths)	<ul style="list-style-type: none"> <li>• Sketching cubic graphs</li> <li>• Quartic graphs</li> <li>• Reciprocal graphs</li> <li>• Points of intersection</li> <li>• Transformations of graphs</li> </ul>

- **Tasks you can do to prepare you:**

<u>Task</u>	<u>Link to the course/specification</u>
<p>Work through the exercises at <a href="https://www.deltamaths.co.uk/a-level-maths-preparation">https://www.deltamaths.co.uk/a-level-maths-preparation</a></p> <p>These are very important skills for beginning A-Level Maths.</p>	<p>These tasks cover a range of topics in the specification, such as:</p> <ul style="list-style-type: none"> <li>• 2.1 Understand and use the laws of indices for all rational exponents.</li> <li>• 2.3 Solution of quadratic equations.</li> <li>• 2.4 Solve simultaneous equations in two variables by elimination and by substitution, including one linear and one quadratic equation.</li> <li>• 2.6 Manipulate polynomials algebraically, including expanding brackets, collecting like terms and factorisation.</li> </ul>
<p>Play the <b>Bridge It!</b> Game: <a href="https://mei.org.uk/bridgeit">https://mei.org.uk/bridgeit</a></p> <p>Bridge It! is built in Flash and so will not run on devices that do not allow Flash applications. It is best played on a laptop or desktop using a mouse or finger pad.</p>	

- **Contact information**

If you have questions regarding this or any other A Level course at Burnley College, please contact [alevels@burnley.ac.uk](mailto:alevels@burnley.ac.uk) or call 01282 733373

We look forward to seeing you in September.