Mathematics Pre-Course Preparation

Analysis and Approaches (A&A) Higher Level (HL)

Lots of students find the initial jump from GCSE to HL Mathematics quite challenging.

The main thing is that your algebra needs to be really good, especially: solving equations (including quadratic, simultaneous), dealing with fractions in equations, factorising, changing the subject, laws of indices (including negative/fractional), completing the square, working with surds. Make sure you are fluent with these topics.

The AMSP (Advanced Maths Support Programme) has created an excellent set of six transition resources aimed at helping prepare students for A-Level Maths, but they look very useful for IB HL preparation as well! They cover a lot of the things mentioned in the previous paragraph. Here is a link to the resources:

AMSP Essential Skills Transition Material :
https://amsp.org.uk/teachers/11-16-maths/transition-to-level-3-maths/essential-skills/

Summer holiday reading:
If you'd like some fun, mathematical reading for the holidays, you might like these books:

- Fermat's Last Theorem – Simon Singh

- Alex's Adventures in Numberland – Alex Bellos

- Professor Stewart's Cabinet of Mathematical Curiosities – Ian Stewart

- The Code Book – Simon Singh

- Humble Pi - Matt Parker

- The Music of the Primes - Marcus du Sautoy

Applications and Interpretations (A&I) Standard Level (SL)

This course is much less demanding than the HL course.
Here is a list of GCSE topics that would be worth revising:

- **Probability** - particularly Venn diagrams and tree diagrams

- **Straight line graphs** - particularly equations of straight line graphs and finding the equation of a perpendicular line.

- **Box plots** - drawing and comparing

- **Averages** - mean, median, mode

- **Trigonometry -** in both right-angled and non-right-angled triangles

- **Functions** – here is a video from Mr Whittaker which recaps the GCSE knowledge you should know for this topic and introduces some new vocabulary and ideas you'll meet in the IB course:
  https://www.loom.com/share/72fca535107a4bcdb759a5855ed2848c

Summer holiday reading:
If you'd like some fun, mathematical reading for the holidays, you might like these books:

- The Tiger That Isn't - Michael Blastland and Andrew Dilnot

- Alex's Adventures in Numberland – Alex Bellos

- Factfulness - Hans Rosling

- Humble Pi - Matt Parker