Focus of the Month
June 2016

Online Tuition

"I've loved the way that I have learned Statistics and the tutor has been brilliant. He has kept focus on the content, delivered it in an engaging way and, at times, has linked ideas and themes together and discussed their applications in the real world."

LOT Student May 2016.

Our focus for this month is the support and tuition that the Further Mathematics Support Programme (FMSP) provides for students who would benefit from studying AS and A level Further Mathematics. Where the units the student wishes to study are not part of the main provision offered by their school or college, the FMSP can provide all or part of the tuition for that unit.

Why use online support?

There a variety of reasons why schools might choose to use FMSP tuition:

Challenge	Possible Approach
Limited contact time for Further Mathematics students in school/college.	Students use FMSP live interactive lectures (LIL) as a resource for flipped learning, supported by a teacher in school.
The school does not have any teachers with experience of teaching Further Mathematics or the specific module content.	Students study modules through FMSP with the support of a tutor online. Teachers can watch recordings to learn alongside students.
Students wish to study modules that are not offered by the school.	Students can study additional modules such as M3, S3 or FP4 independently with the support of an online tutor.

Live Interactive Lectures

One form of support provided by the FMSP is Live Interactive Lectures (LIL). These online lecture courses are designed to supplement the teaching and tutorial support provided in schools and colleges and a student's own independent study. Each series of lectures introduces the key content of a module and students have access to recordings of the lectures for revision. In addition students have access to extensive, purpose-written online resources through Integral.
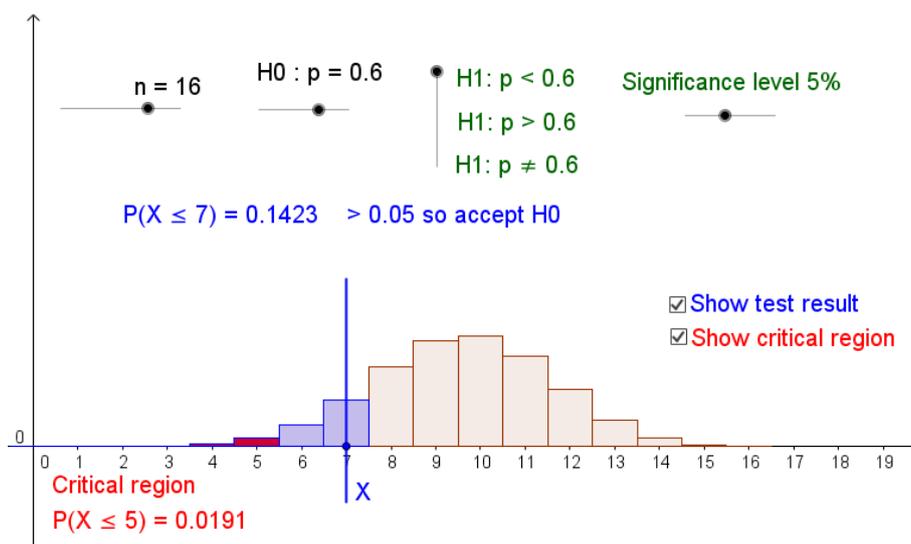
LIL is an excellent resource for schools and colleges that are teaching Further Mathematics on a reduced timetable and it is also useful in supporting less experienced teachers of Further Mathematics.   The lectures require follow-up tutorials and support by a mathematics teacher from the students' school/college which make it an ideal solution in both of these cases. All of the further pure and most of the applied modules are offered and the schedules are published on the LIL page of the FMSP website

An online platform, Blackboard Collaborate, is used to teach the live sessions. To access these sessions all that is needed is a computer connected to the internet. It is not necessary to install any software; to attend a session students just follow a link that will be provided.

The cost of Live Interactive Lectures is £50 per unit for the first student and £10 for each additional student.

Live Online Tuition

Where schools and colleges cannot support LIL in-house, the FMSP provides Live Online Tuition (LOT) to complement the LIL Further Mathematics sessions. Students log in to the online classroom and can interact with an FMSP tutor during the lessons via live text chat, audio link and a shared electronic whiteboard, using a graphics tablet. In addition the tutor and students can work together on shared mathematics-relevant software such as spreadsheets and GeoGebra, pictured below.

Students are set additional exercises to work on between the online sessions and receive follow up support from their FMSP tutor. Students also have access to Integral resources, an example of which is shown below.

If $z_1 = -2 + 3i$ calculate $\arg(z_1)$.

When calculating the argument of a complex number it's always useful to draw a diagram.

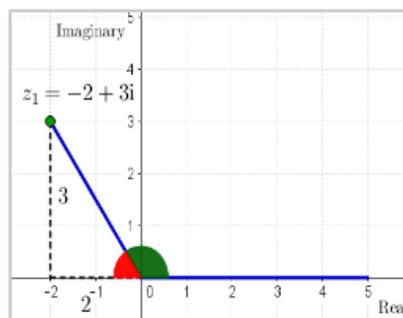The argument of z_1 is the **green** angle shown in the diagram.

One way to calculate this to calculate the **red** angle and then subtract this from π.

Therefore $\arg(z_1) =$

$$\pi - \arctan \frac{3}{2} = 2.16 \text{ rad (to 2 d.p.)}.$$

Here is one for you to try.

If $z_2 = 3 - 4i$ calculate $\arg(z_2)$.

Group sizes for LOT are small, usually between one and six students per tutor. Tutors are all experienced teachers of Mathematics and Further Mathematics and are available via email to respond to queries between sessions.

A recording is made of each session so that students can return to and review the material covered at a later date. A series of carefully focused revision recordings are also available to students for each unit. These also give a flavour of the online classroom environment.

The cost of LOT is £248 per student per module, which includes access to LIL for that module as well.

Other Support

FMSP offers a course for students preparing for the Mathematics Admission Test and MEI provide support for students preparing for the STEP and AEA papers.

Organising Tuition
Your FMSP Area Coordinator is the first point of contact to discuss how best the FMSP can provide tuition support. Contact details for your Area Coordinator can be found on the regional pages of the FMSP website.