

Conference 2010 Preparing for STEP Maths 1 and 2 by Peter Mitchell

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STEP Mathematics is alive and well as a vehicle for entrance to Cambridge University Mathematics' courses, candidature is expected or encouraged for Bristol, Warwick and Oxford. It is open to all as an extra challenge at 16+. Preparing for STEP involves little by way of extra content but the questions use the curriculum content in a more challenging way. This session will address a set of issues that can be addressed with advantage for single subject A level candidates attempting STEP, and give the opportunity to consider how to tackle some of the questions.



What and how?

- Sixth Term Entry Paper
- developed after the abandonment of the old Cambridge scholarship and entrance examination (around 20 years ago)
- used for selection by Cambridge University, by Warwick University and now by Oxford University too
- available to all, regardless of aspirations
- a valuable resource of interesting problems

STEP Mathematics - examination format

- pure (8 questions), mechanics (3), statistics and probability (2)
- all questions notionally equal in weight
- long questions, contrasting with structured questions of standard modules
- intended to promote thought, so new material with guidance is definitely a possibility
- candidates are advised to answer six questions
- formulae and tables allowed but not calculators

STEP Mathematics - content

- paper 1 - set at A-level (single subject) standard
- paper 2 - same specification but harder
- paper 3 - amplified specification parallelling A-level Further Mathematics

Extra teaching of knowledge should not in principle be necessary (but some extension of applied work may be advisable).

Assessing STEP

The marking scheme for each question will be designed to reward candidates who make good progress towards a complete solution. Normally, a candidate who answers at least four questions well will be awarded a grade 1.

Each question is marked out of 20, and the grade boundaries in 2008 were as follows :

Paper	max	S	1	2	3	U
I	120	81	65	43	29	0
II	120	94	69	58	35	0
III	120	82	63	52	34	0

How?

- encourage self-motivated study of past papers
- make papers and solutions available
- show interest
- advise on technique

Having candidates prepare and deliver answers, preferably to a group of similar students, is an excellent way of motivating all necessary aspects of the work. It is an approach which makes candidates both criticise and also learn from each other!

Approach to preparing for STEP

Essential

- to stimulate a problem-solving approach;
- to wean candidates off the expectation of being told what to do;
- to promote confidence in extended situations;
- to gain experience of doing past papers.