



Question Paper Brief

Advanced Higher Mathematics

C747 77

This edition: February 2016 (version 1.0)

This document may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged. Additional copies can be downloaded from SQA's website at www.sqa.org.uk.

Note: You are advised to check SQA's website (www.sqa.org.uk) to ensure you are using the most up-to-date version.

© Scottish Qualifications Authority 2016

Question Paper Brief — Advanced Higher Mathematics

The Course assessment consists of one question paper which will assess:

- ◆ using mathematical reasoning skills to think logically, provide justification and solve problems
- ◆ using a range of complex concepts
- ◆ selecting and applying complex operational skills
- ◆ using reasoning skills to interpret information and to use complex mathematical models
- ◆ effectively communicating solutions in a variety of mathematical contexts
- ◆ explaining and justifying concepts through the idea of rigorous proof
- ◆ thinking creatively

The question paper will sample the 'Further mandatory information on Course Coverage' in the *Course Assessment Specification*. This sample will draw on all of the skills, knowledge and understanding from each of the following areas:

- ◆ algebraic skills
- ◆ calculus skills
- ◆ geometric skills
- ◆ reasoning skills

Command words are the verbs or verbal phrases used in questions and tasks which ask candidates to demonstrate specific skills, knowledge or understanding. For examples of some of the command words used in this assessment, refer to [the Specimen Question Paper and the Exemplar Question Paper](#).

The Course assessment will consist of one question paper:

	Question paper
Time	180 minutes
Marks	100
Skills	<p>The question paper will give candidates an opportunity to apply mathematical techniques and skills to: partial fractions; techniques of differentiation; techniques of integration; solution of differential equations; binomial theorem and complex numbers; sequences and series; summation and mathematical proof; properties of functions; algebraic and calculus skills to problems; matrices and systems of equations; vectors; applying geometric skills to complex numbers; number theory; and methods of proof as specified in the table provided in the 'Further mandatory information on Course coverage' section at the end of the <i>Course Assessment Specification</i>.</p> <p>The question paper will require candidates to demonstrate aspects of breadth, challenge and application in mathematical contexts. The use of a calculator will be permitted.</p>
Percentage of marks across the paper	<p>Approximately 25–45% of the overall marks relate to Methods of Algebra and Calculus.</p> <p>Approximately 25–45% of the overall marks relate to Applications of Algebra and Calculus.</p> <p>Approximately 25–45% of the overall marks relate to Geometry, Proof and Systems of Equations.</p>
Type of question	Short answer and extended response
Type of question paper	Unstructured: question paper and separate answer booklet. This will allow sufficient space for extended working and open responses.
Proportion of level 'C' questions	Some questions will use a stepped approach to ensure that there are opportunities for candidates to demonstrate their abilities beyond level 'C'. Approximately 65% of marks will be available for level 'C' responses.
Balance of skills	Operational and reasoning skills will be assessed in the question paper. Some questions will assess only operational skills (approximately 65% of marks) but other questions will require both operational and reasoning skills (approximately 35% of marks).