



## Syllabus Change Mapping Document for *Cambridge International AS & A Level Further Mathematics Further Pure 1 Student's Book* ISBN: 9781510421783

We are working with Cambridge Assessment International Education towards endorsement of this forthcoming title

Take mathematical understanding to the next level with this accessible series, written by experienced authors, examiners and teachers.

Find out how our new Further Pure 1 Student's Book covers the changes in the revised Cambridge International AS & A Level Further Mathematics syllabus (9231) from 2020 below. For more information about the full series of four Student's Books and components for this syllabus, go to [www.hoddereducation.com/cambridgeasalevelmathematics](http://www.hoddereducation.com/cambridgeasalevelmathematics)

### **Changes to the syllabus for examination from 2020:**

Please visit [www.cambridgeinternational.org](http://www.cambridgeinternational.org) for information about current syllabuses and full details of changes

The syllabus for Further Pure Mathematics 1 is now organised into the following main topics:

- 1.1 Roots of polynomial equations
- 1.2 Rational functions and graphs
- 1.3 Summation of series
- 1.4 Matrices
- 1.5 Polar coordinates
- 1.6 Vectors
- 1.7 Proof by induction

New areas of study include the following:

| New content in syllabus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Chapter in Hodder Education book |
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| <p><b>1.2 Rational functions and graphs</b></p> <ul style="list-style-type: none"> <li>• understand and use relationships between the graphs of <math>y = f(x)</math>, <math>y^2 = f(x)</math>, <math>y = \frac{1}{f(x)}</math>, <math>y =  f(x) </math> and <math>y = f( x )</math></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Chapter 4, Section 4.4           |
| <p><b>1.4 Matrices</b></p> <ul style="list-style-type: none"> <li>• carry out operations of matrix addition, subtraction and multiplication, and recognise the terms zero matrix and identity (or unit) matrix</li> <li>• recall the meaning of the terms 'singular' and 'non-singular' as applied to square matrices and, for 2x2 and 3x3 matrices, evaluate determinants and find inverses of non-singular matrices</li> <li>• understand and use the result, for non-singular matrices, <math>(\mathbf{AB})^{-1} = \mathbf{B}^{-1}\mathbf{A}^{-1}</math></li> <li>• understand the use of 2x2 matrices to represent certain geometric transformations in the x-y plane, in particular               <ul style="list-style-type: none"> <li>○ understand the relationship between the transformations represented by <math>\mathbf{A}</math> and <math>\mathbf{A}^{-1}</math></li> <li>○ recognise that the matrix product <math>\mathbf{AB}</math> represents the transformation that results from the transformation represented by <math>\mathbf{B}</math> followed by</li> </ul> </li> </ul> | Chapter 1<br><br>Chapter 6       |

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| <p>the transformation represented by <b>A</b></p> <ul style="list-style-type: none"><li>○ recall how the area scale factor of a transformation is related to the determinant of the corresponding matrix</li><li>○ find the matrix that represents a given transformation or sequence of transformations</li><li>● understand the meaning of ‘invariant’ as applied to points and lines in the context of transformations represented by matrices, and solve simple problems involving invariant points and invariant lines</li></ul> |  |
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**Matrices:** New content added for Papers 1 and 2. Previous content on matrices removed but eigenvalues and eigenvectors retained.

### Why not try Sample Material with your students?

View more information about all components available for this syllabus and download Sample Material at [www.hoddereducation.com/cambridgeasalevelmathematics](http://www.hoddereducation.com/cambridgeasalevelmathematics)