The Maths Workbook

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The *Maths Workbook* has been developed for use by students preparing for the Preliminary Examination in PPE, E&M and History and Economics. It covers the mathematical techniques that students are expected to know for the exam.

The *Maths Workbook* was written by Margaret Stevens, with the help of: Alan Beggs, David Foster, Mary Gregory, Ben Irons, Godfrey Keller, Sujoy Mukerji, Mathan Satchi, Patrick Wallace, Tania Wilson.

Complementary Textbooks

As far as possible the *Workbook* is self-contained, but it should be used in conjunction with standard textbooks for a fuller coverage:

- Malcolm Pemberton and Nicholas Rao *Mathematics for Economists: An Introductory Textbook* 4th edition 2016, or earlier editions. (Comprehensive; appropriate level. This book is not included in the specific references in workbook chapters, but students should find it easy to identify relevant sections.)
- Ian Jacques *Mathematics for Economics and Business* 7th Edition 2013, or earlier editions. (The most elementary.)
- Martin Anthony and Norman Biggs *Mathematics for Economics and Finance*, 1996. (Useful and concise, but less suitable for students who have not previously studied mathematics to A-level.)
- Carl P. Simon and Lawrence Blume *Mathematics for Economists*, 1994 or 2010. (A good but more advanced textbook, that goes well beyond the *Workbook*.)
- Hal R. Varian *Intermediate Microeconomics: A Modern Approach* covers many of the economic applications, particularly in the Appendices to individual chapters, where calculus is used.
- In addition, students who have not studied A-level maths, or feel that their maths is weak, may find it helpful to use one of the many excellent textbooks available for A-level Pure Mathematics (particularly the first three modules).

How to Use the Workbook

There are ten chapters, each of which can be used as the basis for a class. It is intended that students should be able to work through each chapter alone, doing the exercises and checking their own answers. References to some of the textbooks listed above are given at the end of each section.

At the end of each chapter is a worksheet, the answers for which are available for the use of tutors only.

The first two chapters are intended mainly for students who have not done A-level maths: they assume GCSE maths only. In subsequent chapters, students who have done A-level will find both familiar and new material.

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