

 CENGAGE

$$\vec{x} \quad P_1 = \begin{pmatrix} 8 \\ -3 \\ 2 \end{pmatrix}$$

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# Algebra

Hamidah Alamin  
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Suraya Hassan  
Juhaidah Hairom  
Bahirah Mohd Bashah  
and Hazaliza Mat Zean

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*Algebra*

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International Islamic University Malaysia



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Fundamentals of Algebra is prepared for upper secondary and matriculation students, in particular students at the Centre for Foundation Studies, IIUM, who are taking Mathematics 1 as one of their core courses. This e-book is designed to equip students with competency, skills and knowledge in Mathematics subjects at the foundation level of university. The content of this e-book covers topics such as Algebra review, equations, inequalities, functions and their graphs, polynomial and rational functions, exponential and logarithmic functions, trigonometric functions and matrices and systems of linear equations. At the beginning of each chapter, the idea and concept of the whole chapter are visualized in a summary via a mind map. Examples for some selected problems are provided as well. Each of these examples comes with a step by step approach where the method is shown and explained clearly to assist the students. Exercise questions and Samples of Examination Questions which have been prepared in-house by experienced instructors are included to help students practice and prepare for examinations. Answers to the exercises and Sample of Examination Questions are included at the end of this e-book. In addition, this e-book aspires to help improve the student's competency in using appropriate concepts and techniques such as analyzing, solving problems, manipulating algebraic operations, evaluating functions as well as their domains and ranges, sketching graphs using transformation techniques, decomposing partial fractions and working with matrices to solve simultaneous equations. All these comprise the skills that are necessary for a student at foundation studies.

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