



Mathematics Department – Lower Sixth Further Maths C3 Scheme of Work

Textbook: Edexcel Modular Mathematics Core Mathematics 3

Unit 1: Algebraic Fractions

- 1.1 Simplifying algebraic fractions by cancelling common factors
- 1.2 Multiplying and dividing algebraic fractions
- 1.3 Adding and subtracting algebraic fractions
- 1.4 Dividing algebraic fractions and the Remainder Theorem

Unit 2: Functions

- 2.1 Mapping diagrams and graphs of operations
- 2.2 Functions and function notation
- 2.3 Range, mapping diagrams, graphs and definitions of functions
- 2.4 Using composite functions
- 2.5 Finding and using inverse functions

Test on units 1&2

Unit 3: Exponential and Logarithm functions

- 3.1 Introducing exponential functions of the form $y=a^x$
- 3.2 Graphs of exponential functions and modelling using $y=e^x$
- 3.3 Using e^x and the inverse of the exponential function $\log_e x$

Unit 4: Numerical Methods

- 4.1 Finding approximate roots of $f(x)=0$ graphically
- 4.2 Using iterative and algebraic methods to find approximate roots of $f(x)=0$

Unit 5: Transforming graphs of functions

- 5.1 Sketching graphs of the modulus function $y = |f(x)|$
- 5.2 Sketching graphs of the function $y = f(|x|)$
- 5.3 Solving equations involving a modulus
- 5.4 Applying a combination of transformations to sketch curves
- 5.5 Sketching transformations and labelling the coordinates of given points

Test on units 3,4&5

Unit 6: Trigonometry

- 6.1 The functions $\sec\theta$, $\operatorname{cosec}\theta$ and $\cot\theta$
- 6.2 The graphs $\sec\theta$, $\operatorname{cosec}\theta$ and $\cot\theta$
- 6.3 Simplifying expressions, proving identities and solving equations using $\sec\theta$, $\operatorname{cosec}\theta$ and $\cot\theta$
- 6.4 Using the identities $1+\tan^2\theta=\sec^2\theta$ and $1+\cot^2\theta=\operatorname{cosec}^2\theta$
- 6.5 Using inverse trigonometrical functions and their graphs
- 7.1 Using additional trigonometrical formulae
- 7.2 Using double angle trigonometrical formulae
- 7.3 Solving equations and proving identities using double angle formulae
- 7.4 Using the form $a\cos\theta+b\sin\theta$ in trigonometrical problems
- 7.5 The factor formulae

Test on Unit 6

Unit 7: Differentiation

- 8.1 Differentiating using the chain rule
- 8.2 Differentiating using the product rule
- 8.3 Differentiating using the quotient rule
- 8.4 Differentiating the exponential function
- 8.5 Finding the differential of the logarithm function
- 8.6 Differentiating $\sin x$
- 8.7 Differentiating $\cos x$
- 8.8 Differentiating $\tan x$
- 8.9 Differentiating further trigonometrical functions
- 8.10 Differentiating functions formed by combining trigonometrical, exponential, logarithmic and polynomial functions

Test on Unit 7