



## Mid Year Exams : February 2012

Please place on this sheet the contents of your course that you will be examining in your Mid Year Exam. Details are expected. Chapter numbers, section headings and the like. Please type using this template and then email the template to me using the following syntax in the Subject header of the email : Taught Subject : Class. Thus if I were sending details of Maths in 7A the subject of the email would be : "Maths : 7A". Every Class/Subject combination should have a separate email. Thus Bassem will send me about 19 emails!

Teacher : B.Kordahi

Subject : Math 12E

### Calculus and Statistics

- 1) Chapter 3 : Continuous Functions on an interval (monotone , root of an equation  $f(x)=0$  , Extension by continuity )
- 2) Chapter 4 : Inverse functions (continuity , monotonosity ,definition and graph )
- 3) Chapter 7 : Natural logarithm ( variations , graph , primitive )
- 4) Chapter 8 : Exponential functions (domain , variations , limits , graph , primitives )
- 5) Chapter 20 : First order differential equations (differential equations , solution of a differential equation , equation of the form  $y' = f(x)$ , separable equations , first order linear equations with constant coefficients )
- 6) Chapter 21 : Linear second order differential equations with constant coefficients ( equation of the form  $y'' = f(x)$ , reduced equation , equation of the type  $y'' + \omega^2 y = k$  )

### Algebra and Geometry

- 7) Chapter 3: Vector product . The triple scalar product (components , applications, areas and volumes , analytic expressions )
- 8) Chapter 4 : Planes and lines (equation of a plane , parametric equations of a line)
- 9) Chapter 5 : Parallelism and orthogonality (relative positions of 2 planes , 2 straight lines , a plane and a straight line , distance from a point to a plane or to a straight line in space)
- 10) Chapter 9 : The modulus and argument of a complex number (modulus , argument , trigonometric form of a complex number )
- 11) Chapter 10 : Exponential form of a complex number ( notation , Euler's and De Moivre's formulas , trigonometric applications- linearization )
- 12) Chapter 15 : Complex numbers in geometry ( geometric interpretation of  $\arg\left(\frac{z-a}{z-b}\right)$

$$\text{and } \left| \frac{z-a}{z-b} \right| )$$