

This sample exam refers to past exam questions from the Study Guide. The Study Guide is available from the website - [www.maths.uq.edu.au/courses/MATH1040](http://www.maths.uq.edu.au/courses/MATH1040), or from Uni Copying Services. Note that the Study Guide contains worked solutions to most of the questions. Your exam has the same formulae at the end.

There are 14 questions in the exam, all short answer. The exam is out of 106. The entire semester's content will be examinable with the exception of the following:

- Chapter 4
- Chapter 5
- Chapter 11 Section 11.2
- Chapter 12 Sections 12.2, 12.3, and 12.4.

There will be a strong emphasis on the material **not** examined in the mid-semester exam (so Chapters 6-15).

For practice questions, try the following:

- Final exam 2009 Questions all
- Final exam 2008 Questions 1,2, 4-15, 17
- Final exam 2007 Questions all except 17
- Final exam 2006 Questions 1-9, 12-18
- Final exam 2005 Questions 2, 4, 5, 6, 9-16
- Final exam December 2004 Questions 5, 6, 8-10, 13-15, 17
- Final exam June 2004 Questions 5, 6, 9, 10, 13-17
- Final exam 2003 Questions 5, 6, 10-13, 16-20
- Final exam 2001 Questions 5, 6, 9, 10-12, 15-19

### Some formulae

Distance between  $(x_1, y_1)$  and  $(x_2, y_2)$ :  $d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$

Roots of  $ax^2 + bx + c = 0$  are:  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Product rule:  $(uv)' = u' \cdot v + u \cdot v'$

Chain rule:  $\frac{dy}{dx} = \frac{dy}{du} \cdot \frac{du}{dx}$

Quotient rule:  $\left(\frac{u}{v}\right)' = \frac{u' \cdot v - u \cdot v'}{v^2}$

Compounding interest: if \$P is invested for  $t$  time periods at an interest rate of  $r$  per period then the final balance  $F$  is given by:

$$F = P(1 + r)^t$$

Continuously compounding interest: if \$P is invested for  $t$  years at an interest rate of  $r$  per annum, compounding continuously, then the final balance  $F$  is given by:

$$F = Pe^{rt}$$

Have you read Page 79 of the Study Guide? It gives some good ideas on how to approach the exam.