SAMPLE Mid-semester Examination
Summer Semester, 2006

COURSE CODE    MATH1040
COURSE TITLE    BASIC MATHEMATICS
EXAMINER        MICHAEL JENNINGS
WEIGHTING/MARKS 25%
PERUSAL TIME    10 mins Writing permitted during perusal
WRITING TIME    1 Hrs 30 mins
NO. OF PAGES IN EXAM PAPER (including cover sheet)

Exam Type: Closed Book
Calculator: Yes - Non-programmable
Dictionary: No
Permitted Materials: Non-programmable calculator, pens, pencils, rubber, ruler

SPECIAL INSTRUCTIONS TO STUDENTS:
There are two parts to this paper. Part A is worth 35 marks and Part B is worth 50 marks. Each question for Part A is worth 1 mark for a correct answer, and 0 marks for an incorrect answer. There are 13 questions in Part B; each question carries the stated number of marks, and part marks will be awarded for correct working.

There are some formulae on the last page of this paper.

Write your answers (including rough working in Part B) in the space provided. If you need extra room, use the back of other pages. You will be issued with a single sheet of blank paper. During perusal, you may write on this blank sheet, but not on the exam booklet. Do not write on the single sheet once perusal is over. Your single sheet will be collected with your exam and will be destroyed (so material written on that sheet will not be assessed).

This sample exam shows you what to expect on your real exam. The number of marks for each question is shown, along with some practice questions from your Study Guide which cover the same topic. Note that the Study Guide contains worked solutions to all of the questions. Your exam has the same cover sheet as this and has the same formulae at the end. I think this is a very useful study guide!
General Award Rules 1A.7 and 1A.8

1A.7 Responsibilities of students
1A.7.1 A student must comply with the examination instructions and directions given by an examination supervisor.
1A.7.2 A student may not enter an examination room without the permission of the examination supervisor, or after the first 10 minutes of examination working time.
1A.7.3 A student must not leave the examination room without the permission of the examination supervisor.
1A.7.4 Permission will not be granted under GAR 1A.7.3 during —
(a) the first 10 minutes of examination working time; and
(b) the final 10 minutes.
1A.7.5 (a) A student must bring into the examination some identification in the form of a current student card or other photographic identification.
(b) The identification must be displayed throughout the examination.
(c) Before the start of the examination, a student without identification must sign a declaration in a form set by the secretary and registrar.
(d) A student who does an examination without identification must produce identification at a location specified in writing by the secretary and registrar either generally or for that student.
(e) The university may withhold the results for an examination for a student who did not have identification at the examination until the student has produced identification under GAR 1A.7.5(d).
1A.7.6 Unless addressing a question to the examiner or examination supervisor, a student must not communicate in any way with another person during the examination.
1A.7.7 A student may bring unauthorised material into the examination room only if the material —
(a) is brought in with the permission of the examiner or examination supervisor; or
(b) is left with the examination supervisor immediately on entering the examination room.
1A.7.8 A student may remove examination books, scripts or material provided to the student during the examination only with the permission of the examination supervisor.

1A.8 Examination supervisors
1A.8.1 The examination supervisor may —
(a) inspect any material brought into the examination room by a student; and
(b) confiscate any material which the examination supervisor reasonably suspects to be or to contain unauthorised material.
1A.8.2 If the examination supervisor reasonably believes that a student's behaviour may distract or disturb other students, the

Part A

For each of the following 26 questions, enter the correct value of \( x \) into the corresponding box. There is no need to show any working. Each correct answer is worth 1 mark; each incorrect answer is worth 0 marks. (Hint: In each case, \( x \) is an integer between -6 and 6 inclusive.)

For practice questions, try:
- Questions 1 to 26 on Page 81 of your Study Guide.
- Questions 1 to 32 on Page 87 of your Study Guide, but not Questions 1, 2, 5, 6, 7, 11, 14, 15, 21, 22, 23, 24, 30, 31 or 32.
- Questions 1 to 23 on Page 93 of your Study Guide, but not Questions 1, 2, 5, 6, 7, 11, 17 or 18.
- Questions 1 to 20 on Page 99 of your Study Guide, but not Questions 1, 2, 5, 6, 7, 17 or 18.
- Questions 1 to 13 on Page 105 of your Study Guide, but not Questions 1, 2, 4, 8, 9 or 13.

For each of the following nine multiple choice questions, circle the correct letter or answer. There is no need to show any working. Each correct answer is worth 1 mark; each incorrect answer is worth 0 marks.

For practice questions, try:
- Multiple choice Questions 1 to 9 on Pages 81 and 82 of your Study Guide.
- Multiple choice Questions 3 to 6 on Pages 87 and 88 of your Study Guide.
- Multiple choice Questions 1 to 10 on Pages 93 and 94 of your Study Guide, but not Questions 2, 3 or 7.
- Multiple choice Questions 1 to 10 on Pages 99 and 100 of your Study Guide, but not Questions 2, 3, 7 or 12.
- Multiple choice Questions 1 to 10 on Pages 105 and 106 of your Study Guide, but not Questions 2, 3 or 7.

There will be NO other questions in Part A after the Multiple Choice questions.
Part B

Each of the following questions carries the stated number of marks. Write your answers in the space provided. Part marks will be awarded for correct working.

1. See the Study Guide - Question 1 Page 82, Question 1 Page 88, Question 1 Page 94, Question 1 Page 100, Question 1 Page 106. (3 marks)

2. Three parts worth 3 marks, 1 mark and 1 mark. See the Study Guide - Question 2 Page 82, Question 3 Page 88, Question 6 Page 95, Question 6 Page 101, Question 6 Page 107

3. See the Study Guide - Question 3 Page 83, Question 5b Page 89, Question 8 Page 101, Question 8 Page 107. (2 marks)

4. (Similar to Q3) See the Study Guide - Question 4 Page 83, Question 5a Page 89, Question 4 Page 83. (3 marks)

5. See the Study Guide – Question 5 Page 83, Question 9 Page 89 (4 marks)

6. See the Study Guide – Question 6 Page 83, Question 2 Page 100 (2 marks)

7. See the Study Guide – Question 7 Page 83, Question 3 Page 95, Question 3 Page 101. (4 marks)

8. See the Study Guide – Question 8 Page 83, Question 7 Page 94, Question 7 Page 101. (2 marks)

9. See the Study Guide – Question 10 Page 83, Question 4 Page 95, Question 4 Page 101, Question 4 Page 107. (3 marks)

10. See the Study Guide – Question 11 Page 83, Question 2 Page 88, Question 2 Page 106. (3 marks)

11. Seven parts, worth 1 mark each. See the Study Guide – Question 12 Page 83, Question 3e, f Page 117, Question 7 Page 123, Question 7 Page 129, Question 7 Page 135.

12. See the Study Guide – Question 9 Page 83, Question 13 Page 95, Question 13 Page 101, Question 13 Page 107. (6 marks)

13. A mystery question involving sigma. Two parts, worth 3 marks each.

Some formulae:

Principle of inclusion/exclusion: \[ P(A \cup B) = P(A) + P(B) - P(A \cap B) \]

Conditional probability: \[ P(A|B) = \frac{P(A \cap B)}{P(B)} \]

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

Have you read Page 80 of the Study Guide? It gives some good ideas on how to approach the exam.