



THE UNIVERSITY
OF QUEENSLAND

LAST NAME:	
FIRST NAME:	
STUDENT NUMBER:	

(PHOTO ID CHECKED BY:)

MID-SEMESTER EXAMINATION

St Lucia Campus

Summer Semester, 2007

MATH1040 – Basic Mathematics SAMPLE EXAM

PERUSAL TIME 10 mins. During perusal, write only on the scrap paper provided.
WRITING TIME 1:30 Hours
EXAMINER Mr Michael Jennings
NO. OF PAGES (include title page and attachments)

Exam Type: Closed Book - No materials permitted

Permitted Materials: Calculator - Yes - Non-programmable calculators only
 Dictionary - Yes - Bilingual Dictionary only
 Other – No electronic aids are permitted (e.g. laptops, phone)

Answer: On examination paper in spaces provided

Number of Questions: There are two parts to this paper. Part A is worth 34 marks and Part B is worth 56 marks. Each question in Part A is worth 1 mark for a correct answer, 0 marks for an incorrect answer. There are 14 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.

Weighting/Marks: 25% - 90 marks

Special Instructions: Students must comply with the General Award Rules 1A.7 and 1A.8 which outline the responsibilities of students during an examination.

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. The study guide is available from the website - www.maths.uq.edu.au/courses/MATH1040Sum, or from Uni Copying Services. Note that the Study Guide contains worked solutions to most of the questions. Your exam has the same cover sheet as this and the same formulae at the end. We think this is a very useful guide to what you can expect on your exam!

Part A

For each of the following 22 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 3 to 26 on Page 79 of your Study Guide.
- Questions 1 to 26 on Page 84 of your Study Guide.
- Questions 3 to 32 on Page 90 of your Study Guide, but not Questions 11, 14, 15 or 20.
- Questions 3 to 23 on Page 96 of your Study Guide, but not Question 11.
- Questions 3 to 20 on Page 102 of your Study Guide.
- Questions 3 to 13 on Page 108 of your Study Guide, but not Questions 9 or 13.

For each of the following eight multiple choice questions, **enter your answer 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.

For practice questions, try:

- Multiple choice Questions 1 to 9 on Pages 79 and 80 of your Study Guide.
- Multiple choice Questions 1 to 9 on Pages 84 and 85 of your Study Guide.
- Multiple choice Questions 1 to 5 on Pages 90 and 91 of your Study Guide.
- Multiple choice Questions 1 to 10 on Pages 96 and 97 of your Study Guide.
- Multiple choice Questions 1 to 13 on Pages 102 and 103 of your Study Guide.
- Multiple choice Questions 1 to 9 on Pages 108 and 109 of your Study Guide.

The last question in Part A is on Venn diagrams. Try the last question in Part A on Page 85.

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. FRACTIONS - See the Study Guide - Question 1 Page 80, Question 1 Page 85, Question 1 Page 91, Question 1 Page 97, Question 1 Page 103, Question 1 Page 109. (3 marks)
2. INEQUALITIES - Three parts worth 3 marks, 1 mark and 1 mark. See the Study Guide - Question 3 Page 81, Question 2 Page 85, Question 3 Page 91, Question 6 Page 98, Question 6 Page 104, Question 6 Page 110 (5 marks)
3. SIGMA – Two parts worth 2 marks, 3 marks. See the Study Guide - Question 4 Page 81, Question 3 Page 86, Question 5b Page 92, Question 8 Page 104, Question 8 Page 110. Question 5 Page 81, Question 4 Page 86, Question 5a Page 92. (4 marks)

4. ABSOLUTE VALUES - See the Study Guide - Question 2 Page 80, Question 8 Page 86, Question 4 Page 91, Question 7 Page 98. (2 marks)
5. SET NOTATION – See Question 1 Assignment 4. (4 marks)
6. EQUATIONS - See the Study Guide – Question 7 Page 81, Question 6 Page 86, Question 2 Page 97, Question 2 Page 103, Question 2 Page 109 (3 marks)
7. SIMPLIFYING EXPRESSION - See the Study Guide – Question 8 Page 81, (3 marks)
8. SURDS - See the Study Guide – Question 7 Page 86, Question 3 Page 104, Question 3 Page 109. (4 marks)
9. POWERS - See the Study Guide – Question 9 Page 81, Question 10 Page 86, Question 4 Page 98, Question 4 Page 104, Question 4 Page 110. (3 marks)
10. PROBABILITY - Seven parts, some worth 1 mark, others worth 2 marks each. See the Study Guide – Question 10 Page 81, Question 12 Page 86, Question 7 Page 132. (5 marks)
11. LINEAR EQUATIONS – Two parts worth 3 marks each. See the Study Guide – Question 3 Page 114, Question 5 Page 126, Question 6 Page 132. (6 marks)
12. SIMULTANEOUS EQUATIONS – Two parts worth 3 marks each. See the Study Guide – Question 7 Page 115, Question 6 Page 120, Question 4 Page 126. (6 marks)
13. A mystery question involving sigma. (4 marks)
14. A mystery question involving Chapter 1 & 2 topics. (4 marks)

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 78 of the Study Guide? It gives some good ideas on how to approach the exam.