

COMMONWEALTH OF AUSTRALIA

Copyright Regulations 1969

Warning

This material has been reproduced and communicated to you by or on behalf of *The Charles Darwin University* pursuant to Part VB of the *Copyright Act 1968* (the Act). The material in this communication may be subject to copyright under the Act. Any further reproduction or communication of this material by you may be the subject of copyright protection under the Act.

Do not remove this notice



Family Name	
Given Names	
Student Number	
Teaching Period	Semester 2, 2016

FINAL EXAMINATION	DURATION
EMA100 – Mathematics Education 1: Content Knowledge for Teaching	Reading Time: 10 minutes
	Writing Time: 120 minutes

INSTRUCTIONS TO CANDIDATES

EXAM CONDITIONS

You may begin writing from the commencement of the examination session. The reading time indicated above is provided as a guide only.
 This is a CLOSED BOOK examination
 No calculators are permitted
 No handwritten notes are permitted
 No dictionaries are permitted

ADDITIONAL AUTHORISED MATERIALS	EXAMINATION MATERIALS TO BE SUPPLIED
none	1 x 16 Page Book

**THIS EXAMINATION IS PRINTED
DOUBLE-SIDED.**

**THIS PAGE HAS BEEN INTENTIONALLY
LEFT BLANK.**

Section A
Multiple Choice Questions
Total Number of Marks for this section: 50

This section should be answered in the Answer Booklet provided. Please ensure that your name and student number have been written in the Answer Booklet.

Each question in Section A is worth 2 marks.
Suggested Time allocation for Section A: 60 minutes

Section B
Short Answer Questions
Total Number of Marks for this section: 50

This section should be answered on the examination paper. Please ensure that your name and student number have been written on the examination paper.

Answer all five questions.

Each question is worth 10 marks.

Suggested Time allocation for Section B: 60 minutes

Make sure you show all working in your answers.

Question 26

A sports shop owner buys a crate of 120 tennis racquets for \$800. She wants to make 50% profit.

(a) How much does she sell each racquet for?

(b) How many racquets does she need to sell at this price to break even?

(c) Sales slow after she sells 70 racquets, so she has a 30% discount sale. If she sells the remaining racquets at the discount price, what is her total profit?

(d) What is the average (median) selling price of the racquets?

Question 27

Below is information about airline prices for a return trip from Brisbane to Auckland and back to Brisbane departing on January 8 and returning on January 15.



	Price	Airline	Depart	Arrive	Duration	From/To	Stops
Opt 1	A\$689	Virgin Aust.	6:10 am	12:25 pm	3h 15m	BNE to AKL	--
			7:00 am	7:40 am	3h 40m	AKL to BNE	--
Opt 2	A\$724	Virgin Aust.	6:10 am	12:25 pm	3h 15m	BNE to AKL	--
			9:15 pm	9:55 pm	3h 40m	AKL to BNE	--
Opt 3	A\$734	Virgin Aust.	6:10 am	12:25 pm	3h 15m	BNE to AKL	SYD
			7:00 am	11:30 am	7h 30m	AKL to BNE	
Opt 4	A\$748	Air NZ	6:10 am	12:25 pm	3h 15m	BNE to AKL	--
			7:00 am	7:40 am	3h 40m	AKL to BNE	--
Opt 5	A\$764	Virgin Aust.	6:30 pm	12:45 am Jan 9	3h 15m	BNE to AKL	--
			7:00 am	7:40 am	3h 40m	AKL to BNE	--

(a) Suppose you want to get to Auckland before 12.30 pm on 8 January. Which option would you choose and why?

(b) State the arrival time of the return trip in option 2 in 24 hour time.

(c) How much more expensive is the Air NZ option than the cheapest Virgin Australia option?

(d) Which of the options has the longest flight duration on the return trip and why?

(e) What is different about option 5 compared to the other 4 options? Explain.

Question 28

A box of 10 ice-creams has 6 mango ice-creams and 4 strawberry ice-creams. Dad gives Tilly and Gabe each an ice-cream at random.

(a) Draw a tree diagram of the possible outcomes

(b) Express the following probabilities as fractions:

i. Gabe and Tilly get the same flavour ice-cream.

ii. Gabe and Tilly get different flavour ice-creams.

iii. Gabe and Tilly get the same flavour ice-cream.

(c) Convert the fraction in (b) to decimals correct to two decimal places

i. Gabe and Tilly get the same flavour ice-cream.

ii. Gabe and Tilly get different flavour ice-creams.

iii. Gabe and Tilly get the same flavour ice-cream.

Question 29

Anne wants to tile her patio. The patio is 3 metres by 6 metres.

- (a) How many $200 \text{ mm} \times 200 \text{ mm}$ tiles does she need?
- (b) If each tiles costs \$1.20, what is the cost of tiling the patio?
- (c) She sees some other tiles which measure $300 \text{ mm} \times 300 \text{ mm}$. How many of these larger tiles would she need?
- (d) The large tiles cost \$5.00 each. Which tiles are better value, the large or small ones? Explain.

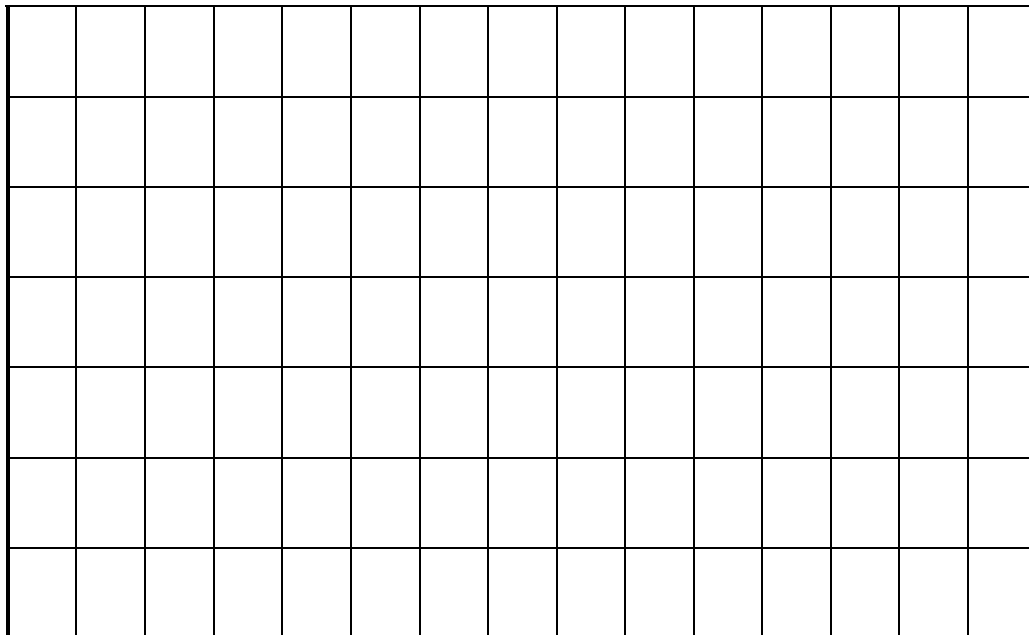
Question 30

The price of bananas is \$2.50/kg.

- (a) Complete all the boxes in the table below to show the cost of different masses of bananas.

Mass of bananas/kg	
1	
2	
5	

- (b) Using an appropriate scale, construct a graph to depict the data in the table above.



(c) Write an equation to represent the cost C of m kilograms of bananas.

(d) Use any of the above to find the price of 2.5 kg of bananas.

END OF EXAMINATION PAPER