Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Applied 2012

Mathematical Applications
(200 marks)

Friday, 8 June
Morning 9.30 – 11.30

General Directions

1. Write your EXAMINATION NUMBER in this space:

2. Write all answers in the boxes or spaces in this answerbook.

3. Show necessary work on right hand blank page opposite each question.

4. Calculators may be used.

5. Answers involving money should be given correct to the nearest cent, unless otherwise indicated.

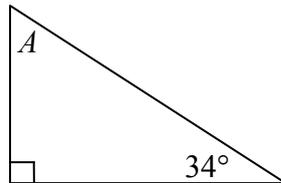**ATTEMPT QUESTION ONE AND THREE OTHER QUESTIONS.**
ALL QUESTIONS CARRY EQUAL MARKS.

For the Superintendent only		*For the Examiner only*		
Centre Stamp			Question	Mark
			1	
			2	
	Cumulative check		3	
	Running total		4	
	– Disallowed		5	
	= Total	↔	Total	

1. **(a)** Find 31% of €158·87.

(b) Ann has €2·80 in 20 cent coins.
How many coins does she have?

(c) Calculate the size of the angle marked *A* in the
given triangle.

(d) Time in Auckland is 12 hours ahead of time in Dublin.
When it is 06:00 in Dublin, what time is it in
Auckland?

(e) A die is thrown. What is the probability of getting
a number greater that 4?

(f) A stereo costs €240·50, including VAT at 30%.
Calculate the cost of the stereo excluding VAT.

(g) Alan spent $\frac{2}{3}$ of his money. He then had €19 left.
How much money had he at the start?

(h) Find the median of the numbers

5, 11, 4, 15, 3, 7, 10, 12, 15.

(i) A car travels 130 km in 2·6 hours.
Calculate the average speed of the car.

(j) Christine scored 20 out of 25 in a Mathematics quiz.
What percentage did she score?

Use this page to show any necessary work for Question 1

2. Research Element Question on Household Bills

(a) Fill in the missing details on the electricity bill below.

Billing Period 22 September 2011 to 2 November 2011 (42 days).
Your electricity usage   **Tariff** Domestic

a: actual reading

meter number	current reading	previous reading	unit usage	× unit price €	unit type	Amount
2187	37807a	36826a		0·1619	General	

Total electricity charges	
Standard charges and other charges	
Standing charge days @ €0·3857/day	
PSO Levy Sept/Oct	4·54
VAT 13·5% on €	
Total due €	

(b) Calculate the average cost per day of the electricity bill.

(c) What percentage of the total bill is the PSO levy?

(d) Carol wishes to paint the ceiling in the sitting room.
The ceiling measures 17·20 m by 8·76 m.

   (i) Calculate the area of the ceiling.

She intends to give the ceiling two coats of paint.

In the local hardware store there is an offer on ceiling paint.
Carol decides to avail of this offer.

   (ii) How many tins of paint will Carol need?

White Ceiling Paint

5 litre can   €19·99

1 litre covers 17 m²

   (iii) How much will the paint cost Carol?

3. **(a) (i)** In the box below, starting at A, draw a line segment $[AB]$ of length 7 cm.

A •
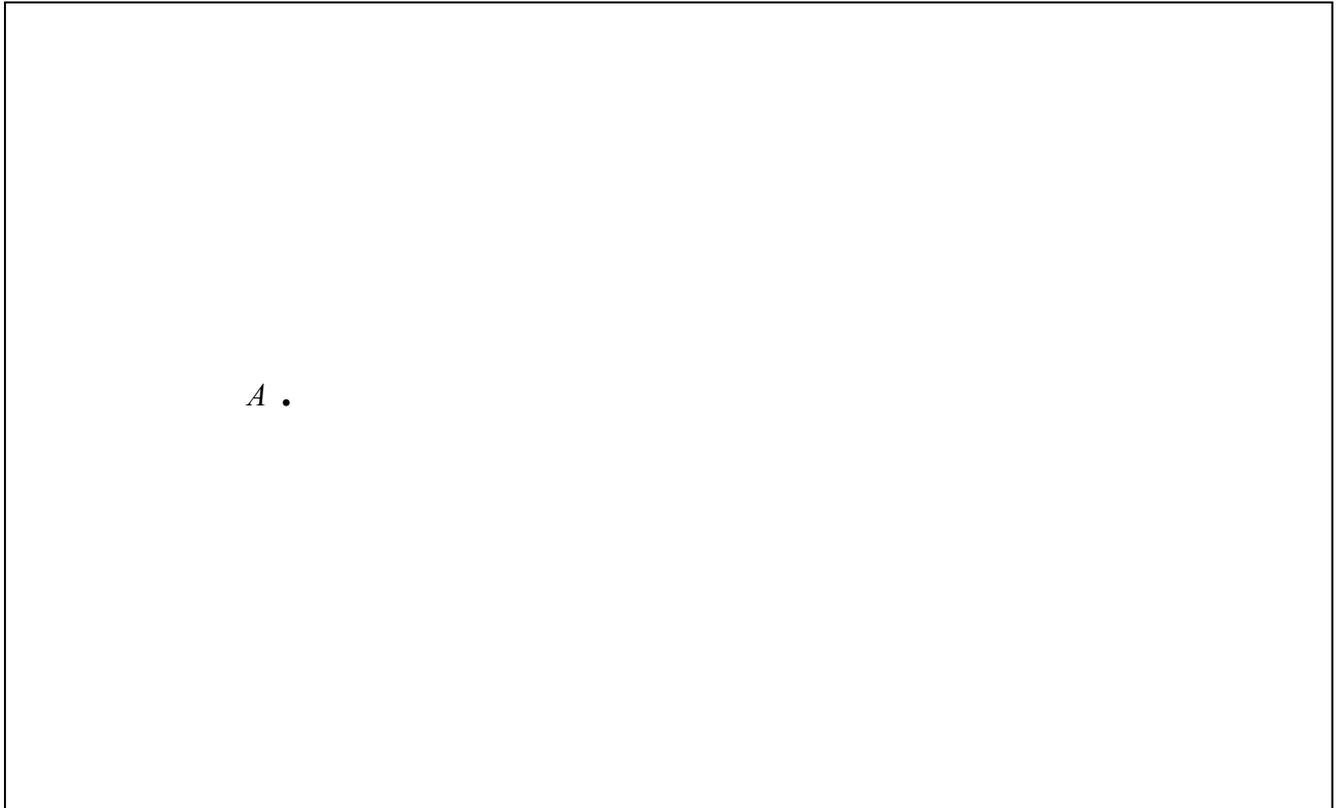
(ii) Mark the midpoint of this line segment and label it M.

(b) In the box above construct a circle with M as centre and $[AB]$ as diameter.

(c) Divide the circle into four equal parts.

(d) Mark in a right angle on your diagram.

(e) Calculate the area of the circle, using $\pi = 3\cdot142$.

Area $= \pi r^2$

(f) Declan borrows €9000 at the rate of 11·66% per annum compound interest.
How much will Declan owe at the end of 3 years if he makes no repayments in the meantime?

Compound interest formula:
$$A = P\left(1 + \frac{R}{100}\right)^n$$

Use this page to show any necessary work for Question 3

4.

Clean-More Company							Time Card

Name: Pauline Gray	Department: Office cleaning	Work Number: B456	Week No: 25

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Start	-	16:25	16:30	18:00	16:05	09:00	11:20
Finish	-	20:10	21:20	21:35	20:35	13:30	13:00
Break	-	-	15 min	-	15 min	15 min	-
Daily hours	-						

SUMMARY

Total Sat/Sun hours [ ] Total Weekday hours [ ]

(a) Calculate the daily hours worked by Pauline each day and write your answers on her Time Card.

(b) Fill in the Summary section of Pauline's Time Card.

(c) Pauline is paid €8·75 per hour. She is paid double time for the weekend work.
Fill in the table to calculate her gross earnings for the week.

Weekday [ ] hours @ €8·75	= € [ ]
Weekend [ ] hours @ € [ ]	= € [ ]
Gross Earnings	[ ]

(d) Jim is travelling to Poland for a holiday.

   (i) He has €500 spending money.
Given an exchange rate of 1€ = 4·36843 zloty,
convert the €500 to Polish zloty.

   (ii) He is charged a commission of 2·5%.
How many Polish zloty does he receive?

Use this page to show any necessary work for Question 4

5. In a confined draw there is one prize of €15 000.
The tickets sell for €100 each and are numbered 1 to 250. All the tickets are sold.
Jo and Beth have bought five tickets between them.

(a) What is the probability that they will win the prize?

(b) They have agreed that, if they win, they
will split the prize in the ratio 3:2.
How much will each receive?

(c) The other costs of running the draw come to €2500.
After all payments are made, what will be the profit from the draw?

(d) In a recent Presidential election the total poll was 1 790 438.
The number of spoiled votes was 18 676.
Calculate the valid poll.

(e) Calculate the quota, using the given formula.

$$\text{Quota} = \frac{\text{Valid poll}}{\text{Number of seats} + 1} + 1$$

(f) The actual turnout was 52% of the electorate.
How many people were entitled to vote?

Use this page to show any necessary work for Question 5

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