



Coimisiún na Scrúduithe Stáit State Examinations Commission

Leaving Certificate Applied 2016

Mathematical Applications

(200 marks)

Friday 10 June

Morning 9:30 to 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 all necessary work in the space provided.
4. Calculators may be used.
5. Answers involving money should be given correct to the nearest cent, unless otherwise indicated.

ANSWER QUESTION ONE AND THREE OTHER QUESTIONS.

ALL QUESTIONS CARRY EQUAL MARKS.

<i>For the superintendent only</i>	<i>For the examiner only</i>			
Centre stamp			Question	Mark
			1	
			2	
	<i>Cumulative check</i>		3	
	Running total		4	
	– Disallowed		5	
	= Total		↔ Total	

Credit

- (f) Convert €300 to sterling, using the exchange rate €1 = £0.7345 sterling.

	Answer:
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- (g) A bus leaves Cork at 08:25 and arrives in Dublin at 13:10.
Work out how long the journey takes, in minutes.

	Answer:
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- (h) A car travels 100 km in 1 hour and 15 minutes.
Find the average speed of the car, in km per hour.

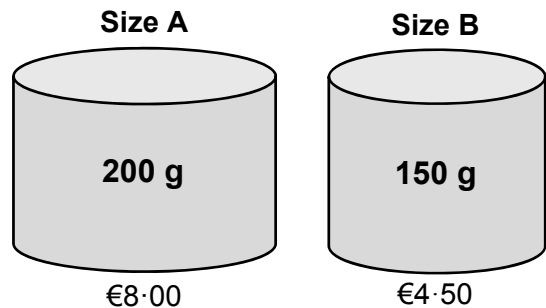
	Answer:
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- (i) Write the following three numbers in order, from the smallest to the largest.

80% 0.084 $\frac{9}{11}$

	Answer:
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- (j) A shop sells coffee in two sizes, size A and size B, as shown. Work out which size offers the **better value**. Show all your working out.



	Answer:
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page	running
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Question 2: Research Element Question on Borrowing and Repayments

A bank offers the following lending rates for car loans.

Monthly Repayments			
Loan Amount	Term		
	2 years (24 months)	3 years (36 months)	5 years (60 months)
€0 – €5000	€47·20	€33·34	€22·13
€5000 – €10 000	€45·94	€32·06	€21·06

Note: the **monthly repayment** figures are **per €1000** and include all interest and charges.

Pat wants to borrow €8000 to buy a car. He will repay the loan over either 3 years or 5 years.

(a) Complete the table below to show the **monthly** repayments in each case.

Term	Loan amount	Monthly repayment per €1000	Total monthly repayment
3 years	€8000		
5 years	€8000		

(b) Write down one advantage for choosing each of these terms.

Advantage of 3-year loan: _____

Advantage of 5-year loan: _____

Question 3

In the competition *Tullow's Got Talent*, the judges gave each person who entered a score from 1 to 8. All of the scores are shown in the following table.

James 4	Dee 8	Pat 2	John 6	Laura 4	Alex 6	Paul 7
Bill 3	David 7	Olive 4	Claire 5	Mary 2	Kate 7	Chris 5

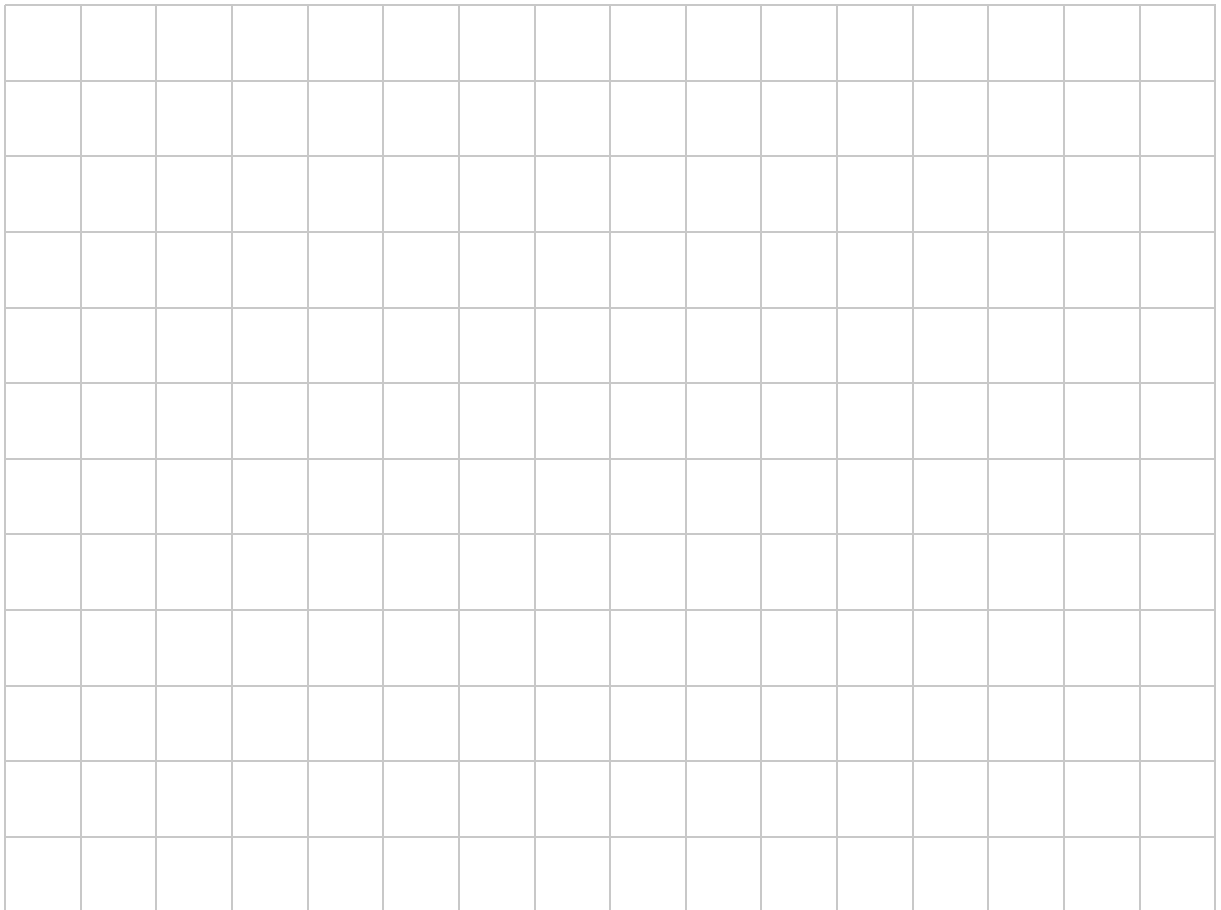
- (a) In total, how many people entered *Tullow's Got Talent* ?

Answer:

- (b) Complete the **frequency table** below.

Score	1	2	3	4	5	6	7	8
Number of people					2		3	

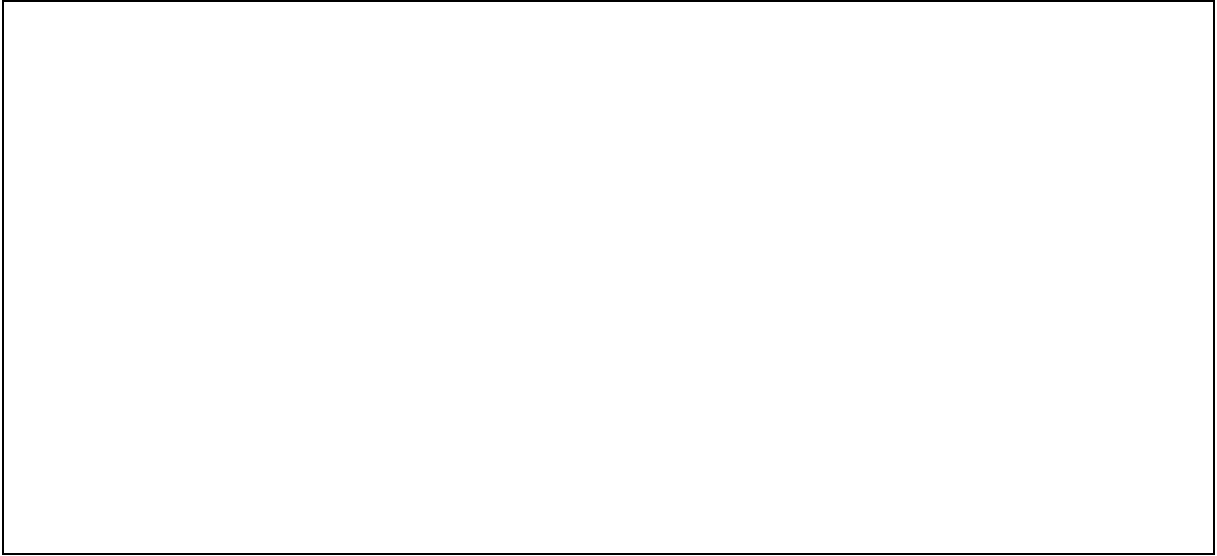
- (c) Draw a **graph** to represent the information in part (b).
Label your graph clearly. Show any calculations that you make.



Question 4

An office floor is 9.8 m long and 5.2 m wide.

- (a)** Construct a **scaled diagram** of this floor in the space below, using a scale of 1:100.



- (b)** Work out the **area** of the floor. Give your answer correct to the nearest m².

	Answer:
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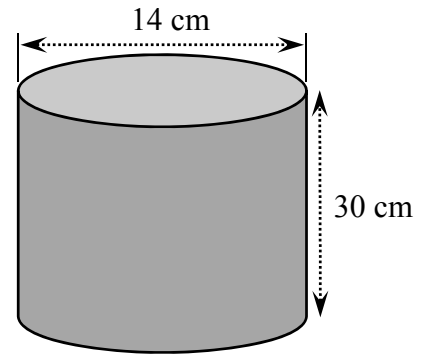
- (c)** The floor is covered with carpet costing €23.50 per m².
Use your answer from part **(b)** to find the **cost** of the carpet needed.

	Answer:
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- (d)** Lynsey wants to tile the floor with square tiles. She allows 20 cm × 20 cm for each tile.
Work out how many tiles Lynsey will need to cover the floor.

	Answer:
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- (e) A cylinder has a diameter of 14 cm and a height of 30 cm. Find the **volume** of the cylinder, taking $\pi = 3 \cdot 14$.



Volume = $\pi r^2 h$

Answer:

- (f) Barry folds a sheet of paper in half, making two layers of paper. Next he folds it in half again. He then folds it in half for a third time.

Find the total number of layers of paper in the folded sheet, after these three folds.

Answer:

- (d) Write the correct unit next to each measurement in the table below.
Use m, m², or m³ in each case.

Measurement	Unit (m, m ² , or m ³)
Length of a swimming pool.	
Volume of a swimming pool.	
Area of the bottom of a swimming pool.	
Width of a swimming pool.	

Tara had a gross income of €27 750 in 2015.

- (e) Tara paid tax at a rate of 20% in 2015. Find Tara's **gross tax** for 2015.

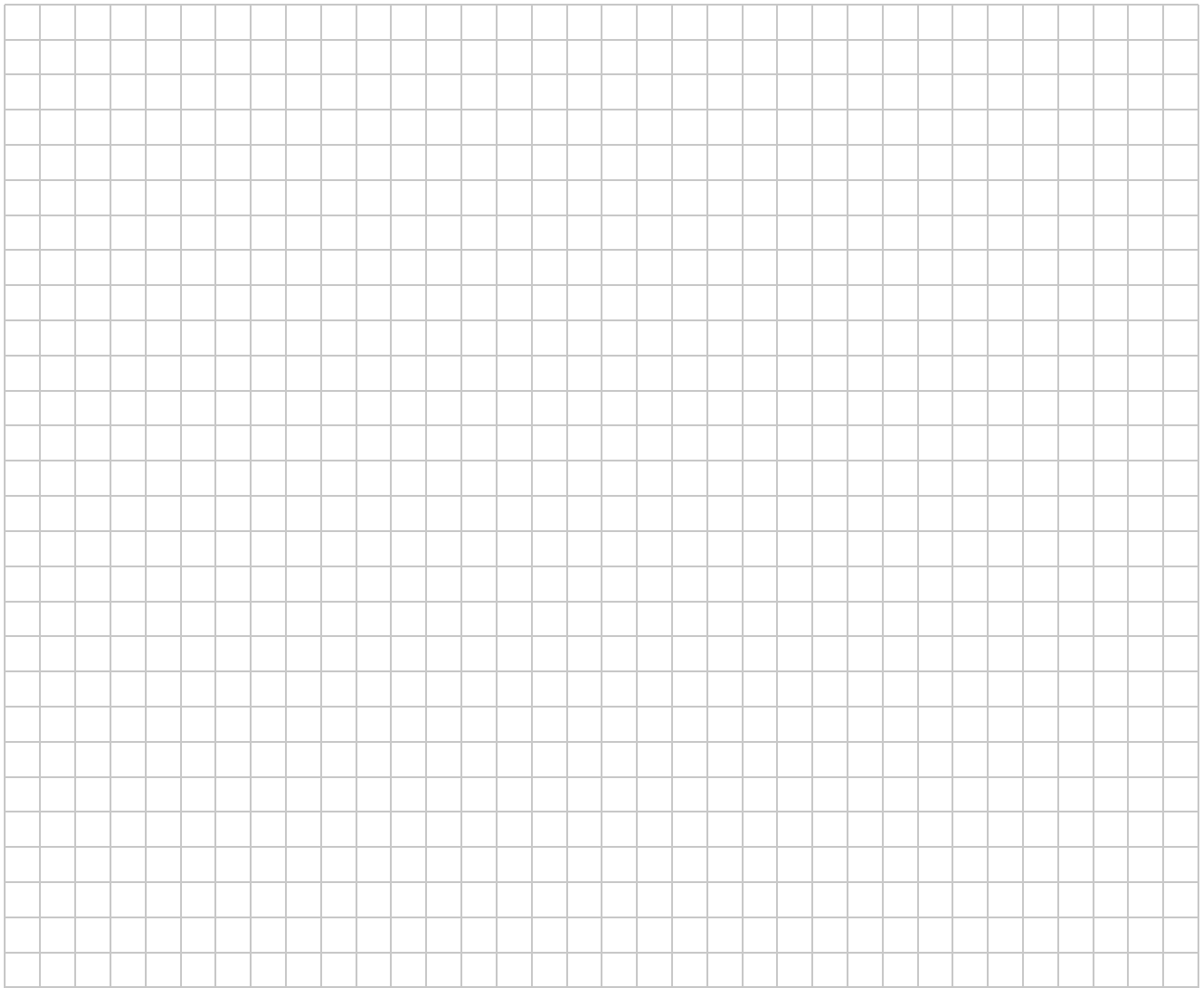
	Answer:
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- (f) Tara had a tax credit of €3300 in 2015. Find Tara's **net income** for 2015.

	Answer:
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- (g) Name **one deduction**, other than income tax, that would have been taken from Tara's gross income in 2015.

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