



Coimisiún na Scrúduithe Stáit State Examinations Commission

Leaving Certificate Applied 2015

Mathematical Applications

(200 marks)

Friday 5 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	
			3	
	<i>Cumulative check</i>		4	
	Running total		5	
	– Disallowed		Total	
	= Total	↔		

Credit

Question 1

- (a) Find 4.8% of €535.40.

	Answer:
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- (b) Find the value of $\sqrt{216}$, correct to one decimal place.

	Answer:
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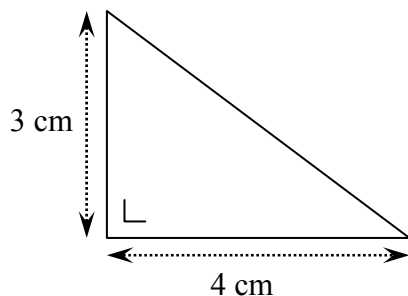
- (c) A heater costs €1.24 per hour to run.
How much will it cost to run the heater for 2 hours and 15 minutes?

	Answer:
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- (d) A prize of €450 is shared between Frank and Walter in the ratio of 2:3.
How much money does each person get?

	Frank gets:	Walter gets:
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- (e) Calculate the area of this triangle:



$$\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

	Answer:
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- (f) Geraldine was born on a Tuesday. Seán was born 37 days later. On what day was Seán born?

															Answer:				

- (g) Liam has a gross income of €520 this week. His tax rate is 20%. Find Liam's **gross tax** for this week.

															Answer:				

- (h) An Olympic sprinter can run 100 m in 10 seconds. Find this speed in km per hour.

															Answer:				

- (i) Write the following fractions in order, from the smallest to the largest.

$$\frac{3}{2}, \frac{5}{7}, \frac{3}{4}$$

															Answer: <table style="display: inline-table; border-collapse: collapse;"><tr><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center; vertical-align: middle;"> </td><td style="padding: 0 5px;">,</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center; vertical-align: middle;"> </td><td style="padding: 0 5px;">,</td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center; vertical-align: middle;"> </td><td style="padding: 0 5px;">.</td></tr></table>						,		,		.
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- (j) A car dealer buys a car for €3500. He sells it for €4130. Find his percentage profit.

															Answer:				

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- (d) Find the profit that Ted will get from his 25 shares.
Use your answers from parts (b) and (c).

	Answer:
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A second group of students set up a mini-company called *Milkshake Madness*. They made and sold milkshakes in their school during lunch break.

- (e) Put a tick (✓) in the correct box in each line in the table below to show whether each item was *Income* or *Expenditure* for the mini-company. One is already done for you.

Item	Income	Expenditure
Bought ice-cream and fruit for milkshakes.		✓
Sold 200 shares in the mini-company.		
Bought Oreo biscuits for milkshakes.		
Rented a blender to make the milkshakes.		

- (f) Write down **one** other item that this mini-company might have had as *Income*.

Answer:

A third group of students set up a mini-company called *Maths Matters*. They made Maths revision notes, and sold them to Junior Certificate students in their school. The **total cost** of making the notes was €240.

They sold 60 copies of the notes for €5 each.

They sold 20 more copies at “half price”.

- (g) Find the **total profit** they made from these sales.

	Answer:
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Question 3

A survey was carried out on a group of students to find out how they usually travel to school. The results are shown in the table below.

Walk	Bus	Bus	Walk	Cycle	Car	Bus	Bus	Bus	Bus
Bus	Walk	Car	Bus	Walk	Bus	Walk	Bus	Walk	Walk
Cycle	Car	Train	Car	Walk	Bus	Walk	Cycle	Bus	Car

(a) Use these data to complete the frequency table below.

Method of travel	Bus	Walk	Train	Car	Cycle
Number of students					

(b) Draw a bar chart to represent these data.

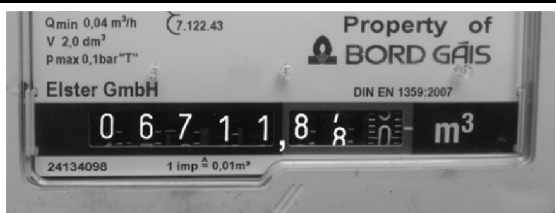

(c) Write down the modal method (**mode**) of travelling to school.

Mode =

(d) What **percentage** of the students walk to school?

	Answer:

The table below shows two photographs of a gas meter, taken 57 days apart.
The reading for one of the photographs is given.

 <p>First reading: 6711 units of gas</p>	 <p>Second reading: _____ units of gas</p>
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(e) **Fill in** the second reading in the table above.

(f) Find the number of units of gas used in this period.

	Answer:

The total charge (in €) for this period is given by this formula, where U is the number of units used:

$$\left(\frac{113 \cdot 5}{100} \times 0 \cdot 6563 \times U \right) + 12 \cdot 81$$

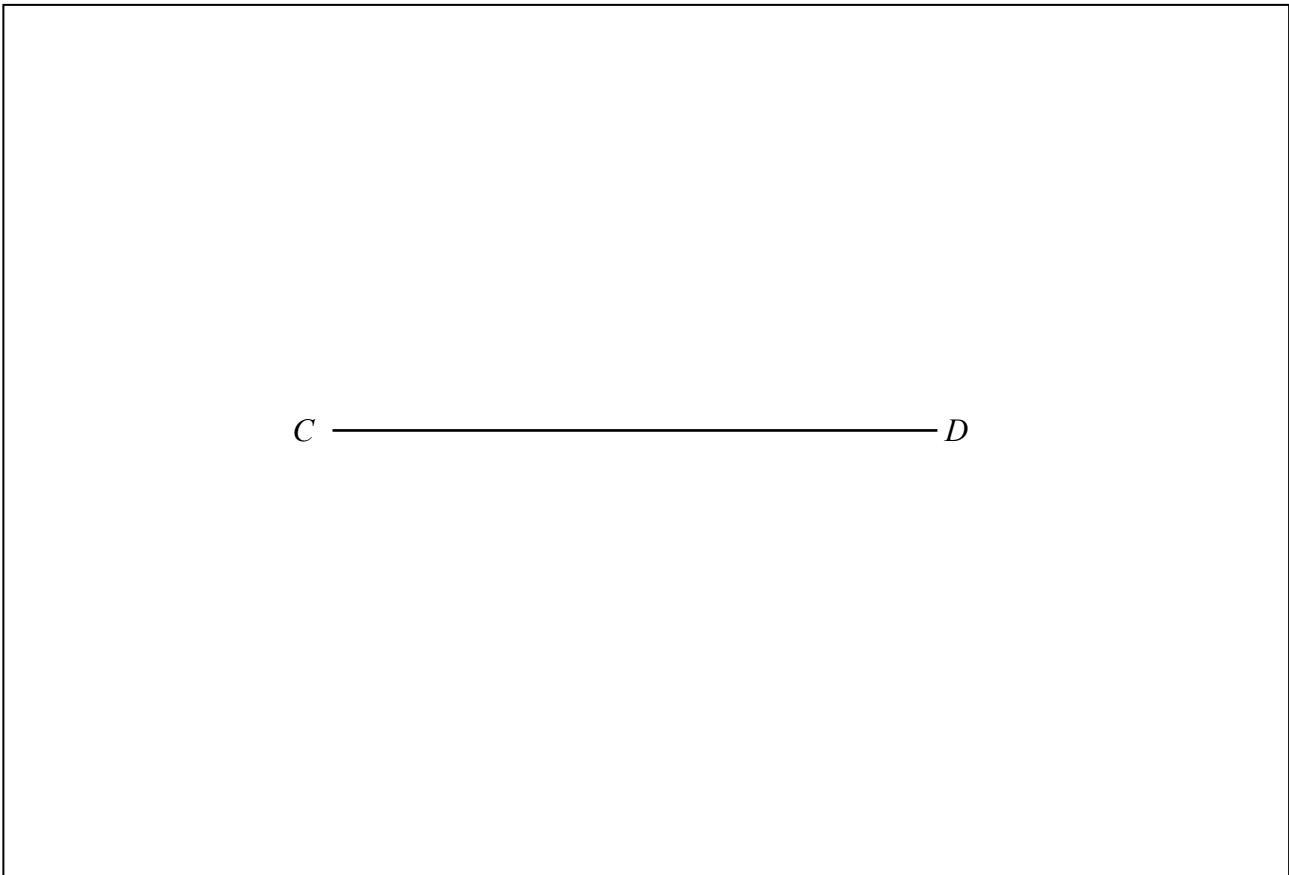
(g) Using the formula, and your answer to part (f), find the total charge for this period.

	Answer:

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Question 4

The diagram below shows the line segment $[CD]$, where $|CD| = 8$ cm.



- (a) Mark the **midpoint** of the line segment $[CD]$.
Label the midpoint M .

- (b) Construct a **circle** with its centre at M and $[CD]$ as a diameter.

- (c) Calculate the **area** of the circle, taking $\pi = 3.142$.
Give your answer in cm^2 , correct to two decimal places.

Area = πr^2	
	Answer:

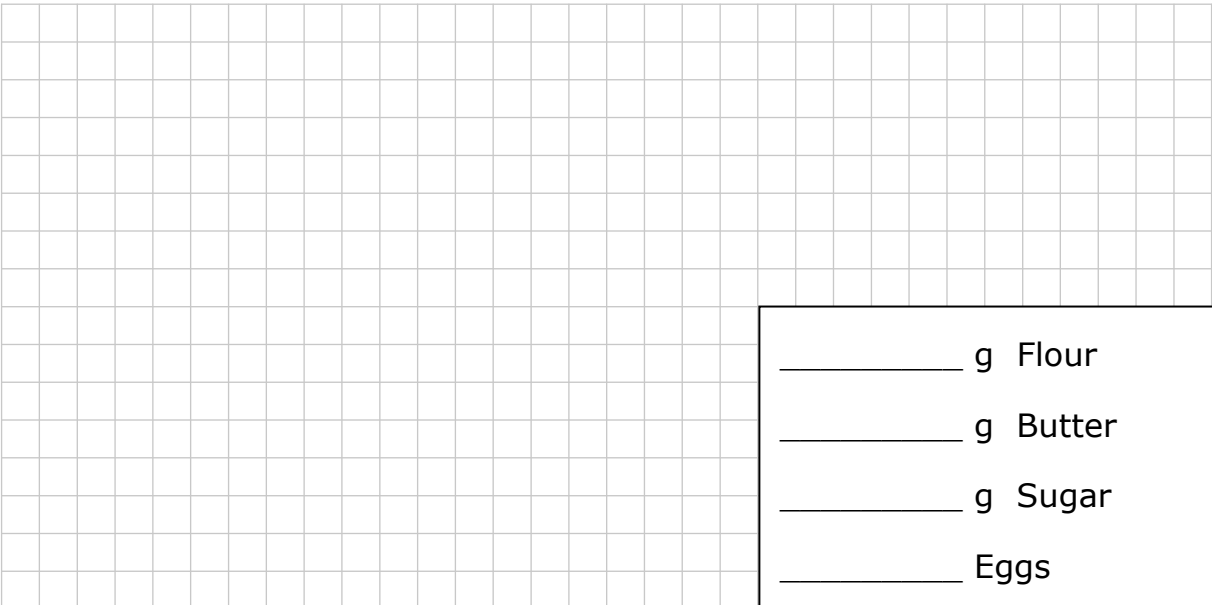
Question 5

Siobhán is making cup cakes. Below is the recipe that she is going to use.

Makes approx. 20 cup cakes
Ingredients
▶ 150 g Flour
▶ 200 g Butter
▶ 120 g Sugar
▶ 2 Eggs

The recipe is for 20 cup cakes. Siobhán is going to make 50 cup cakes.

(a) Find how much of each ingredient she will need to make 50 cup cakes.

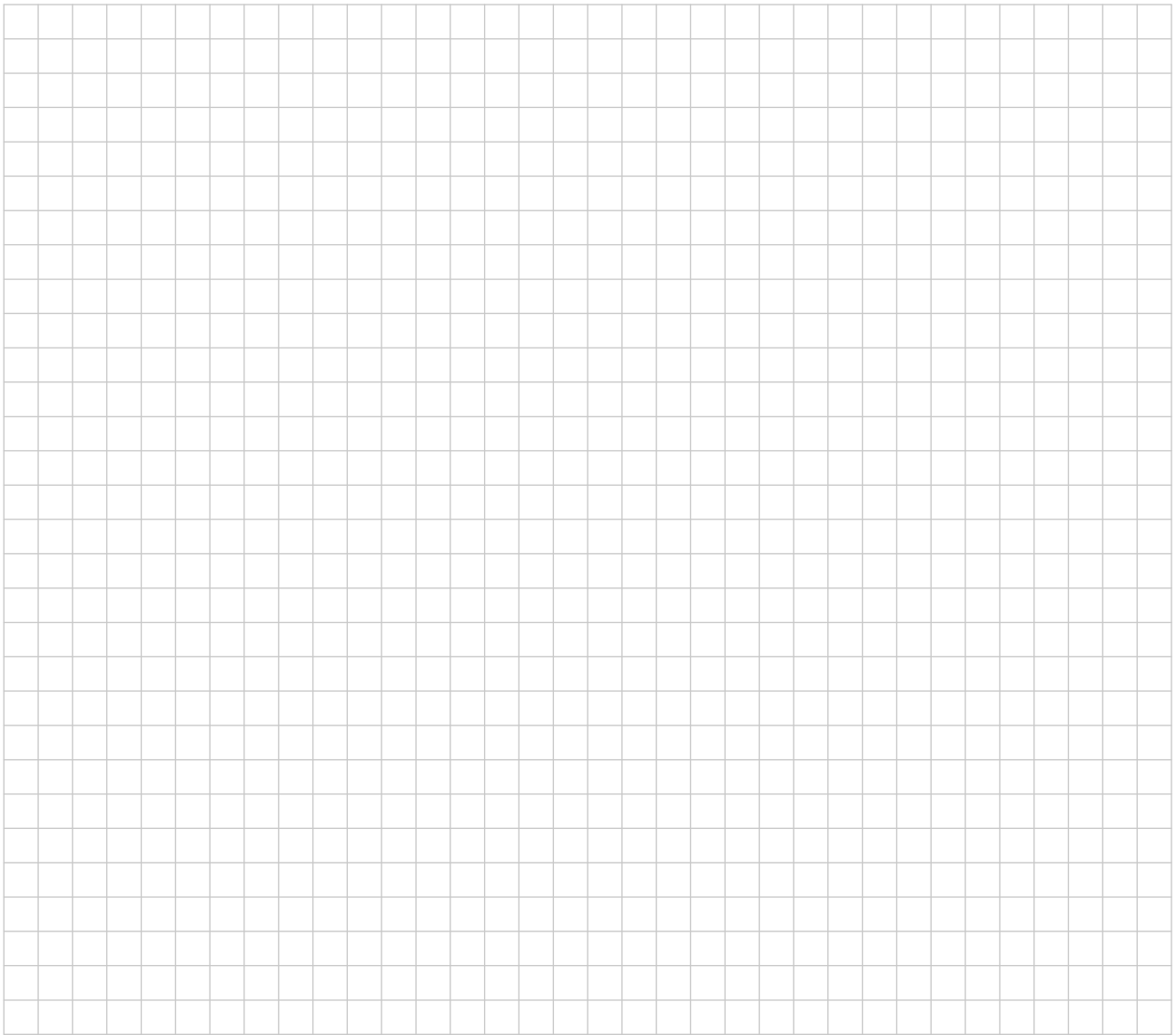
	_____ g Flour _____ g Butter _____ g Sugar _____ Eggs
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The recipe says: “Preheat the oven to 350° F.” Siobhán’s oven is in degrees Celsius.

(b) Convert 350° Fahrenheit into degrees Celsius, using the formula $C = \frac{5(F - 32)}{9}$.

Give your answer correct to the nearest whole number.

	Answer:
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