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	KU	RE
Total marks		

2500/403

NATIONAL
QUALIFICATIONS
2007

THURSDAY, 3 MAY
10.40 AM – 11.15 AM

MATHEMATICS
STANDARD GRADE
General Level
Paper 1
Non-calculator

Fill in these boxes and read what is printed below.

Full name of centre

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Town

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Forename(s)

--

Surname

--

Date of birth

Day Month Year

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Scottish candidate number

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Number of seat

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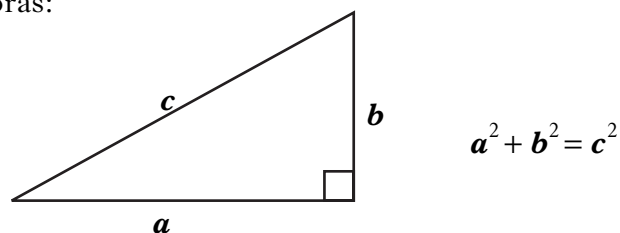
- 1 You may not use a calculator.
- 2 Answer as many questions as you can.
- 3 Write your working and answers in the spaces provided. Additional space is provided at the end of this question-answer book for use if required. If you use this space, write clearly the number of the question involved.
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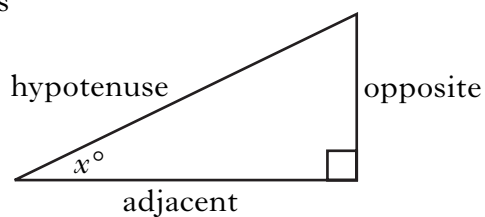
FORMULAE LIST

Circumference of a circle:	$C = \pi d$
Area of a circle:	$A = \pi r^2$
Curved surface area of a cylinder:	$A = 2\pi r h$
Volume of a cylinder:	$V = \pi r^2 h$
Volume of a triangular prism:	$V = Ah$

Theorem of Pythagoras:

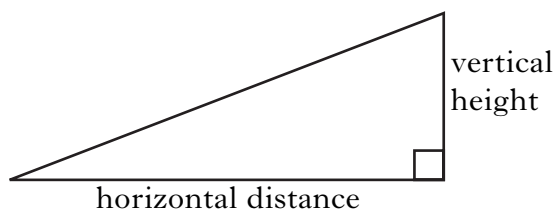


Trigonometric ratios
in a right angled
triangle:



$$\begin{aligned}\tan x^\circ &= \frac{\text{opposite}}{\text{adjacent}} \\ \sin x^\circ &= \frac{\text{opposite}}{\text{hypotenuse}} \\ \cos x^\circ &= \frac{\text{adjacent}}{\text{hypotenuse}}\end{aligned}$$

Gradient:



$$\text{Gradient} = \frac{\text{vertical height}}{\text{horizontal distance}}$$

(a) $4.27 - 1.832$

1

1

1

2

Write this number in full.

2

3. Zoe is a member of a gym.

Marks

KU RE

The gym offers the following exercise sessions.

Exercise	Session Time
Weights	15 minutes
Dance	40 minutes
Running	20 minutes
Cycling	30 minutes
Swimming	45 minutes

Zoe is advised to choose **three** different exercises.

She wants to exercise for a **minimum of 90 minutes**.

One possible combination of three different exercises is shown in the table below.

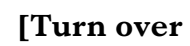
Complete the table to show all the possible combinations of three different exercises Zoe can choose.

Weights	Dance	Running	Cycling	Swimming	Total Time (minutes)
		✓	✓	✓	95 minutes

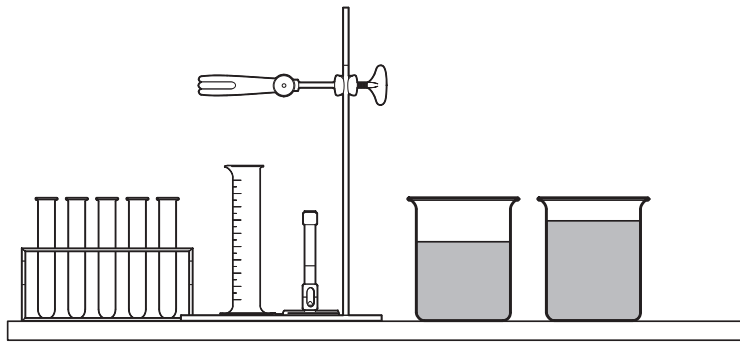
3

KU	RE
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- 3



5. In an experiment Rashid measures the temperature of two liquids.



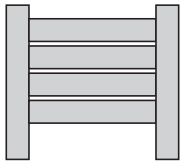
The temperature of the first liquid is -11°C .
The temperature of the second liquid is 23°C .
Find the difference between these temperatures.

Marks	DO NOT WRITE IN THIS MARGIN	
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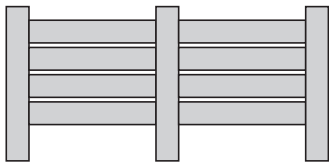
Marks

KU RE

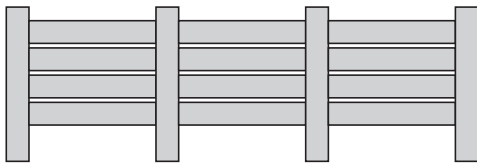
6. A children's play area is to be fenced.
The fence is made in sections using lengths of wood, as shown below.



1 section



2 sections



3 sections

- (a) Complete the table below.

Number of sections (s)	1	2	3	4	5		12
Number of lengths of wood (w)	6	11					

2

- (b) Write down a formula for calculating the number of lengths of wood (w), when you know the number of sections (s).

2

- (c) A fence has been made from 81 lengths of wood.
How many sections are in this fence?

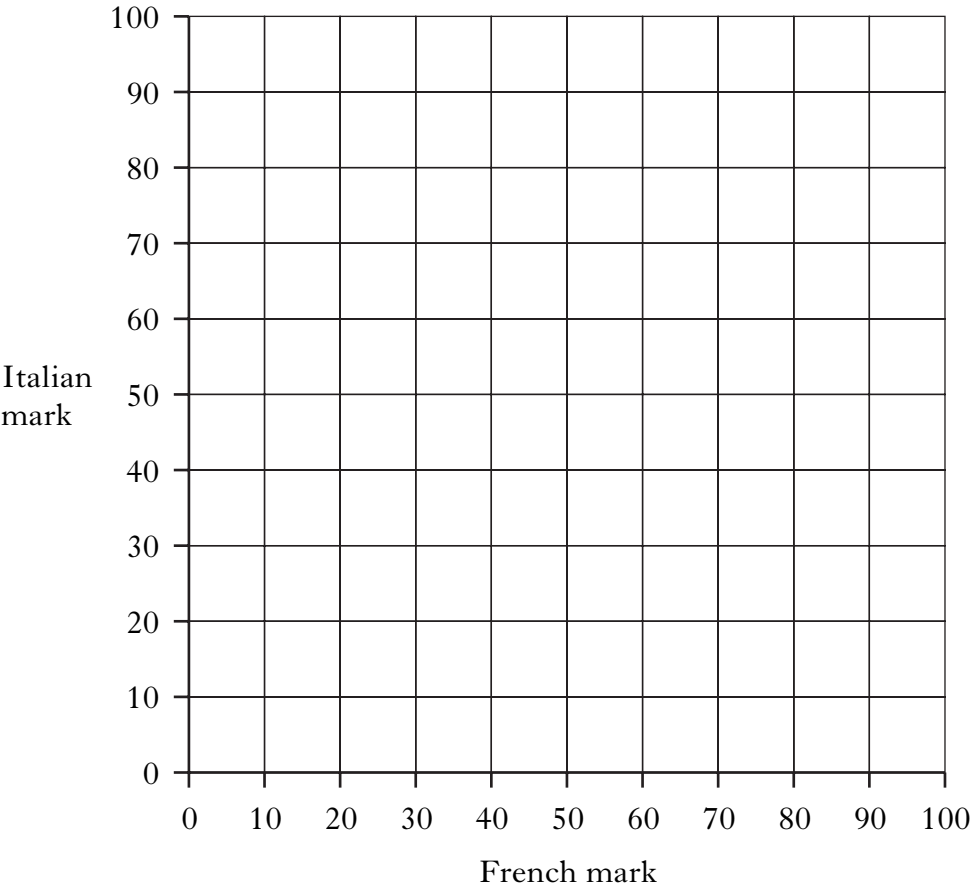
You must show your working.

2

7. The table below shows the marks scored by pupils in French and Italian exams.

Pupil	A	B	C	D	E	F	G	H
French Mark	15	23	50	38	40	42	70	82
Italian Mark	28	31	62	54	45	55	85	95

(a) Using these marks, draw a scattergraph.



(b) Draw a best-fitting line on the graph.

Marks

2

1

[illegible]

3

Shown below is his order for 25 boxes of folders.

Office Supplies	
Blue Folders	7 boxes
Green Folders	11 boxes
Pink Folders	3 boxes
Yellow Folders	4 boxes
Total	25 boxes

- (a) What is the probability that the first box Craig opens contains pink folders?

1

What is the probability that the next box he opens contains blue folders?

2

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[2500/403]

ADDITIONAL SPACE FOR ANSWERS

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	KU	RE
Total marks		

2500/404

NATIONAL
QUALIFICATIONS
2007

THURSDAY, 3 MAY
11.35 AM – 12.30 PM

MATHEMATICS
STANDARD GRADE
General Level
Paper 2

Fill in these boxes and read what is printed below.

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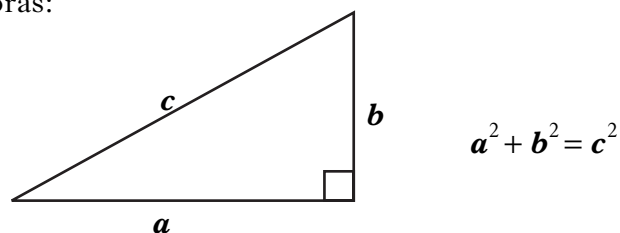
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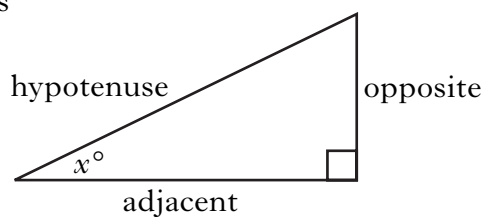
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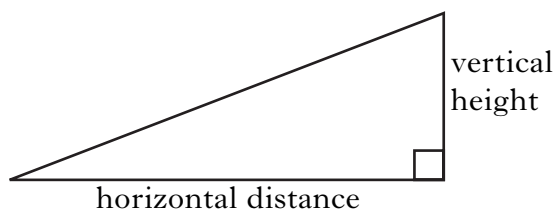


Trigonometric ratios
in a right angled
triangle:



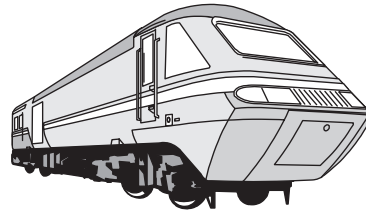
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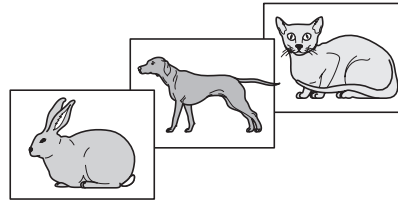
- Calculate the distance between Dingwall and Aberdeen.



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2

BELMONT VETS CHECK-UP FEES



Dog	£17.50
Cat	£11.75
Rabbit	£7.95

How often did the cat have a check-up?

4

[Turn over

- | | |
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5. (a) Simplify

$$2(3x + 7) + 4(3 - x).$$

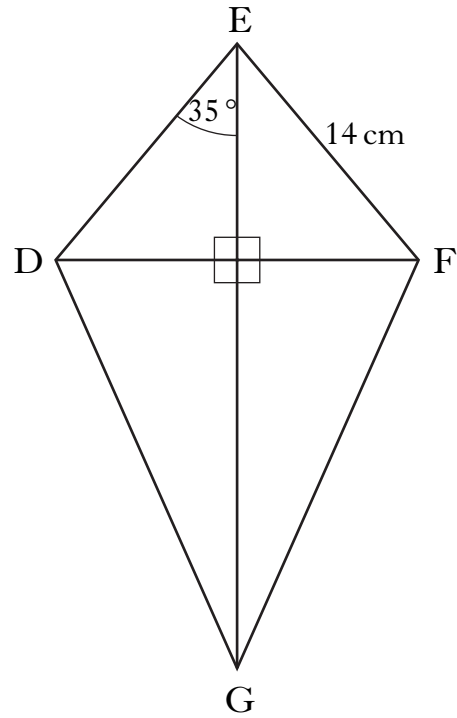
(b) Solve the inequality

$$4a - 3 \geq 21.$$

Marks	DO NOT WRITE IN THIS MARGIN	
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3		
2		

[Turn over

- angle DEG = 35°
- EF = 14 centimetres.



4

A diagram showing a row of six identical arches. The distance between the centers of the first two arches is labeled as 4 m.


(a) Find the length of the curved edge of **one of the semicircles**.

The diagram illustrates a sequence of points connected by lines. The points are represented by small circles, and the connections are solid lines. The sequence starts on the left with a point, moves up and right to a second point, then down and right to a third point, and so on, forming a series of connected line segments. The overall shape of the sequence is a wave-like pattern that transitions into a spiral on the right side.

Give a reason for your answer.

2

2



**Platinum
Saver Account**

6.3% interest per annum

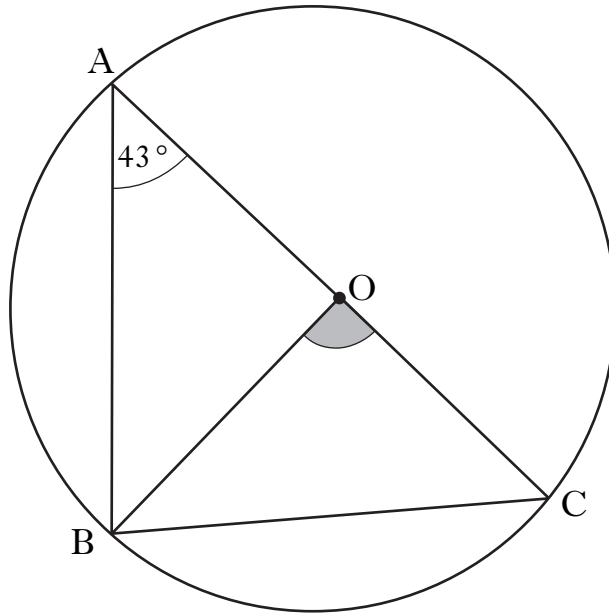
How much simple interest will she receive after 10 months?

3

9. In the diagram:

- O is the centre of the circle
- AC is a diameter
- B is a point on the circumference
- angle $BAC = 43^\circ$.

Calculate the size of shaded angle BOC.

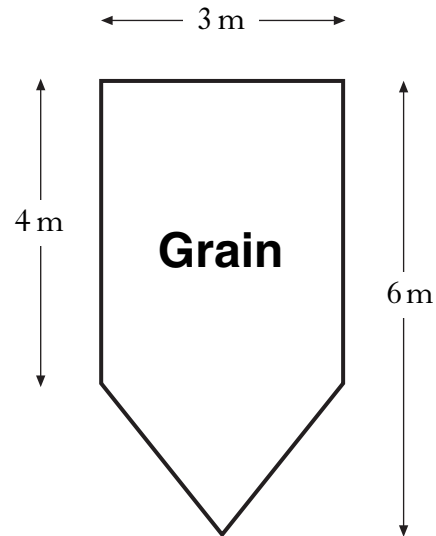


Marks

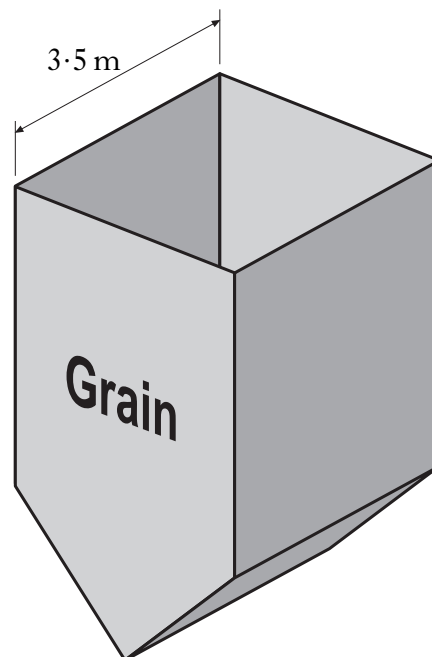
KU RE

3

- (a) Calculate the area of the end face.



- (b) The grain hopper is in the shape of a prism with a length of 3.5 metres.
- Find the volume of the hopper.



3

2

3



KU	RE
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- (a) What is the burning time of a 40 millimetre candle?

3

- (b) A candle burns for $2\frac{1}{2}$ hours.
What is the height of this candle?

3

Page fourteen

ADDITIONAL SPACE FOR ANSWERS

ADDITIONAL SPACE FOR ANSWERS