

FOR OFFICIAL USE

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	KU	RE
Total marks		

2500/403

NATIONAL
QUALIFICATIONS
2006

FRIDAY, 5 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			Town		
<input type="text"/>			<input type="text"/>		
Forename(s)			Surname		
<input type="text"/>			<input type="text"/>		
Date of birth		Scottish candidate number		Number of seat	
Day	Month	Year			
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- You may **not** use a calculator.
- Answer as many questions as you can.
- 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.
- Full credit will be given only where the solution contains appropriate working.
- Before leaving the examination room you must give this book to the invigilator. If you do not you may lose all the marks for this paper.



FORMULAE LIST

Circumference of a circle: $C = \pi d$

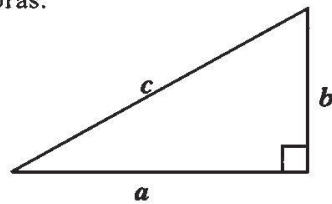
Area of a circle: $A = \pi r^2$

Curved surface area of a cylinder: $A = 2\pi r h$

Volume of a cylinder: $V = \pi r^2 h$

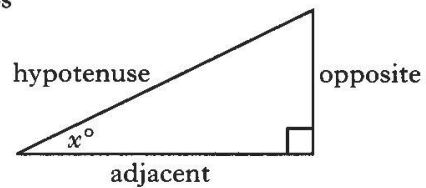
Volume of a triangular prism: $V = Ah$

Theorem of Pythagoras:



$$a^2 + b^2 = c^2$$

Trigonometric ratios
in a right angled
triangle:

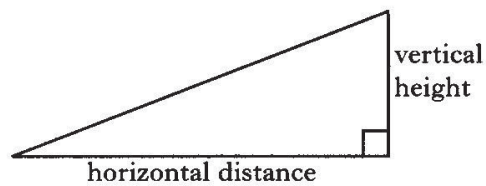


$$\tan x^\circ = \frac{\text{opposite}}{\text{adjacent}}$$

$$\sin x^\circ = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos x^\circ = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Gradient:



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

DO NOT
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MARGIN

1. Carry out the following calculations.

(a) $2.73 + 7.6 - 8.4$

(b) 13×7000

(c) $56.5 + 500$

(d) 30% of 92 litres


Marks	DO NOT WRITE IN THIS MARGIN	
	KU	RE
1		
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[Turn over

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2.

Paulo's Pizzas



Student Discount
 $\frac{1}{3}$ off the price of each pizza

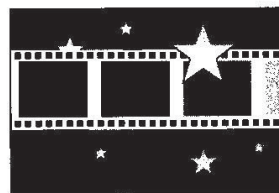
Marks

KU RE

Emily is a student and she buys a pizza from Paulo's Pizzas.
She chooses a pizza which is normally £8.49.
How much will Emily pay for the pizza?

3

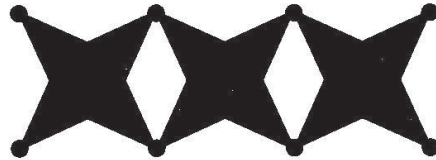
3. A new movie costs \$320 million to make.
Write this amount in scientific notation.



2

Marks

4. Jenni is making a wallpaper border.
She is using stars and dots to make the border.

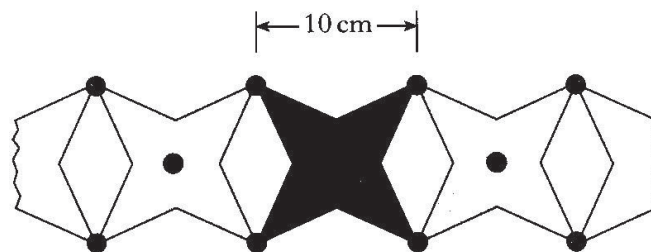


- (a) Complete the table below.

Number of stars (s)	1	2	3	4	5
Number of dots (d)			11		

- (b) Write down a formula for calculating the number of dots (d), when you know the number of stars (s).

- (c) Each star is 10 centimetres long.



The wallpaper border Jenni makes is 300 centimetres long.

- (i) How many stars does Jenni need?
- (ii) How many dots does she need?

2

2

1

2

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6. A box contains 10 coloured balls.
There are 4 yellow balls, 3 blue balls, 2 green balls and 1 red ball.

- (a) David takes a ball from the box.
What is the probability that the ball is blue?



Marks

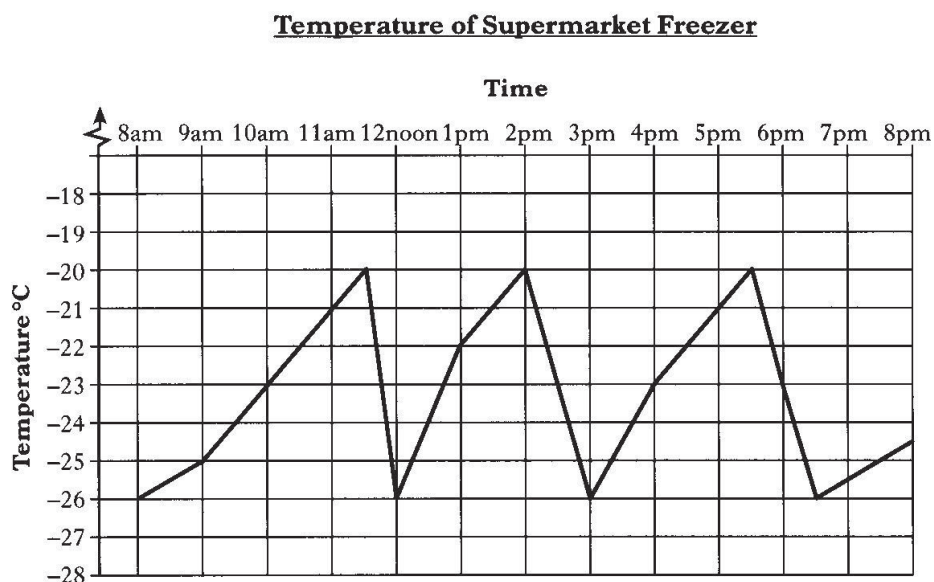
	KU	RE
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- (b) The ball is put back in the box.
2 yellow balls and the red ball are then removed.
What is the probability that the next ball David takes from the box is green?

[Turn over

7. The temperature in a supermarket freezer during a 12-hour period is shown in the graph below.

Marks



- (a) From 8am, how long did it take for the temperature to rise to -20°C ?

1

- (b) For how long, in **total**, was the temperature rising during the 12-hour period?

3

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Marks

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8. Rachel asks 19 friends how many text messages they sent last week.

Their answers are shown below.

34	25	46	62	28
38	42	23	25	15
32	52	35	44	30
10	33	41	55	



- (a) Display Rachel's friends' answers in an ordered stem and leaf diagram.

- (b) What is the median number of text messages?

[Turn over for Question 9 on Page ten

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KU RE

Total marks

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NATIONAL
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2006

FRIDAY, 5 MAY
11.35 AM - 12.30 PM

MATHEMATICS
STANDARD GRADE
General Level
Paper 2

Fill in these boxes and read what is printed below.

Fill name of centre Town

Forwards (P174) Surname

Date of birth Day Month Year Scottish candidate number Number of seat

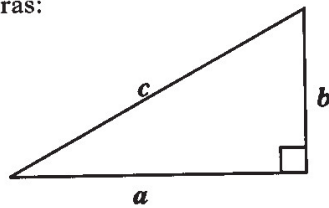
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FORMULAE LIST

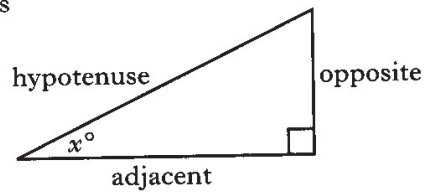
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$$a^2 + b^2 = c^2$$

Trigonometric ratios
in a right angled
triangle:

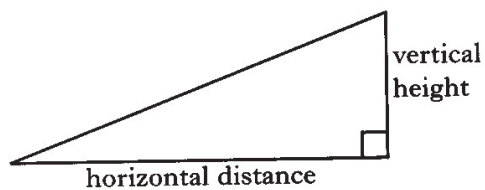


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$$\sin x^\circ = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos x^\circ = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Gradient:



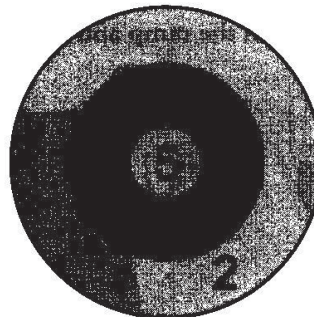
$$\text{Gradient} = \frac{\text{vertical height}}{\text{horizontal distance}}$$

Marks

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3. At a school fun day, prizes can be won by throwing darts at a target. Each person throws **six** darts. Points are awarded as follows.

	POINTS
Centre	5
Middle Ring	3
Outer Ring	2
Miss	0



Prizes are won for **25 points or more**.

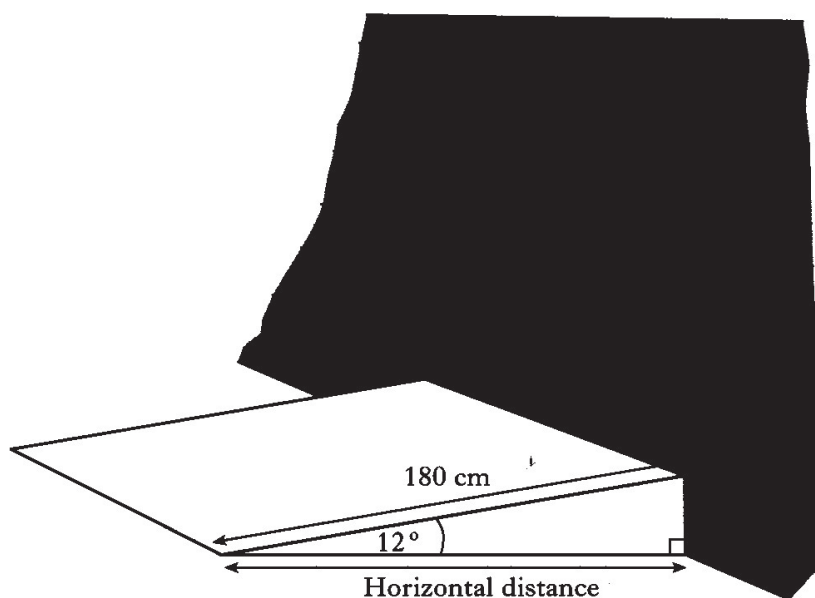
Complete the table below to show all the different ways to win a prize.

Number of darts scoring 5 points	Number of darts scoring 3 points	Number of darts scoring 2 points	Number of darts scoring 0 points	Total Points
4	2	0	0	26

4

[Turn over

4. The entrance to a building is by a ramp as shown in the diagram below.
The length of the ramp is 180 centimetres.
The angle between the ramp and the ground is 12° .



Calculate the horizontal distance.
Round your answer to one decimal place.
Do not use a scale drawing.

Marks

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4		

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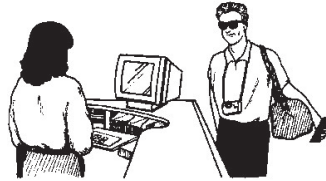
5. Ann works in a hotel.

She is paid £5.60 per hour on weekdays and double time at weekends.

Last month her gross pay was £436.80.

Ann worked a total of 54 hours on weekdays.

How many hours did she work at double time?



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4		

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6. (a) Factorise

$$6a + 15b.$$

(b) Solve algebraically

$$4x - 3 = x + 21.$$

Marks

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2		
3		

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9. The top of Calum's desk is in the shape of a quarter-circle as shown. The measurement shown is in metres.



- (a) Calculate the area of the top of the desk.

- (b) Calum wants to paint the top of his desk.
The tin of paint he buys has a coverage of 1 m^2 .
Using this tin of paint, how many times could he paint the top of his desk?

Marks

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2		

Marks

10. Maria is two years old.

Each week she goes to the nursery for 3 full days and 2 half days.

(a)

Playwell Nursery		
Prices		
Age	Full day	Half day
0-2 years	£28	£15
3-5 years	£23.50	£12.50

Maria's mother pays for her to attend Playwell Nursery.

How much does Maria's mother pay each week?

2

On Monday, Tuesday and Wednesday Maria goes to nursery from 9 am to 3 pm.

On Thursday and Friday she goes from 9 am to 12 noon.

(b) The nursery introduces a new hourly rate.

New Rate £5 per hour

Will Maria's mother save money when the nursery changes to the hourly rate?

Give a reason for your answer.

3

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12. Gordon is insuring his car with Carins Insurance.
The basic annual premium is £765.



As Gordon is a new customer his premium is calculated by taking $\frac{1}{5}$ off the basic annual premium.

However, because he wants to pay in monthly instalments, Carins Insurance add an extra 8% to his premium.

How much in total will Gordon pay per month?

4

[END OF QUESTION PAPER]