G

	KU	RE
Total marks		

2500/403

MATHEMATICS
STANDARD GRADE
General Level
Paper 1
Non-calculator

Fill in these boxes and read what is printed below.

Full name of centre

Town

Forename(s)

Surname

Date of birth

Day	Month	Year	Scottish candidate number	Number of seat

1 You may **not** use a calculator.

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SCOTTISH
QUALIFICATIONS
AUTHORITY

FORMULAE LIST

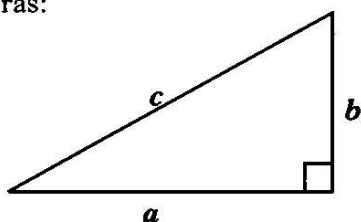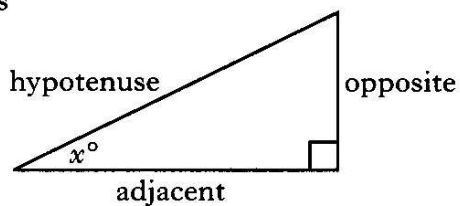|	
Circumference of a circle:	$C = \pi d$
Area of a circle:	$A = \pi r^2$
Curved surface area of a cylinder:	$A = 2\pi r h$
Volume of a cylinder:	$V = \pi r^2 h$
Volume of a triangular prism:	$V = Ah$

Theorem of Pythagoras:

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

Trigonometric ratios
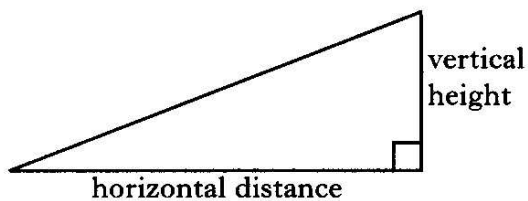in a right angled
triangle:

$$\tan x° = \frac{\text{opposite}}{\text{adjacent}}$$

$$\sin x° = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos x° = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Gradient:

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

1. Carry out the following calculations.

(a) $2 \cdot 73 + 7 \cdot 6 - 8 \cdot 4$

(b) 13×7000

(c) $56 \cdot 5 \div 500$

(d) 30% of 92 litres

1

1

1

2

2.

Paulo's Pizzas

Student Discount

$\frac{1}{3}$ _off the price of each pizza_

Emily is a student and she buys a pizza from Paulo's Pizzas.

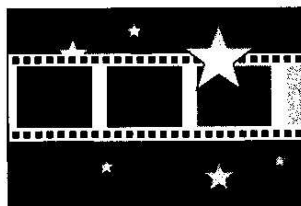She chooses a pizza which is normally £8·49.

How much will Emily pay for the pizza?

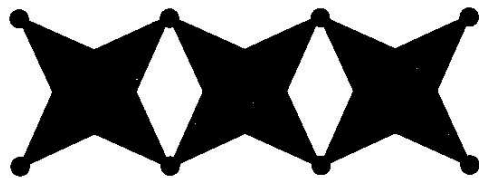**3**

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		

2

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

2

(*c*) Each star is 10 centimetres long.

|←— 10 cm —→|
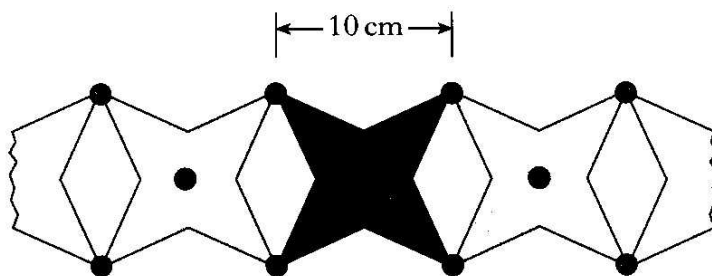
The wallpaper border Jenni makes is 300 centimetres long.

(i) How many stars does Jenni need?

1

(ii) How many dots does she need?

2

5. The line AB is drawn on the grid below.
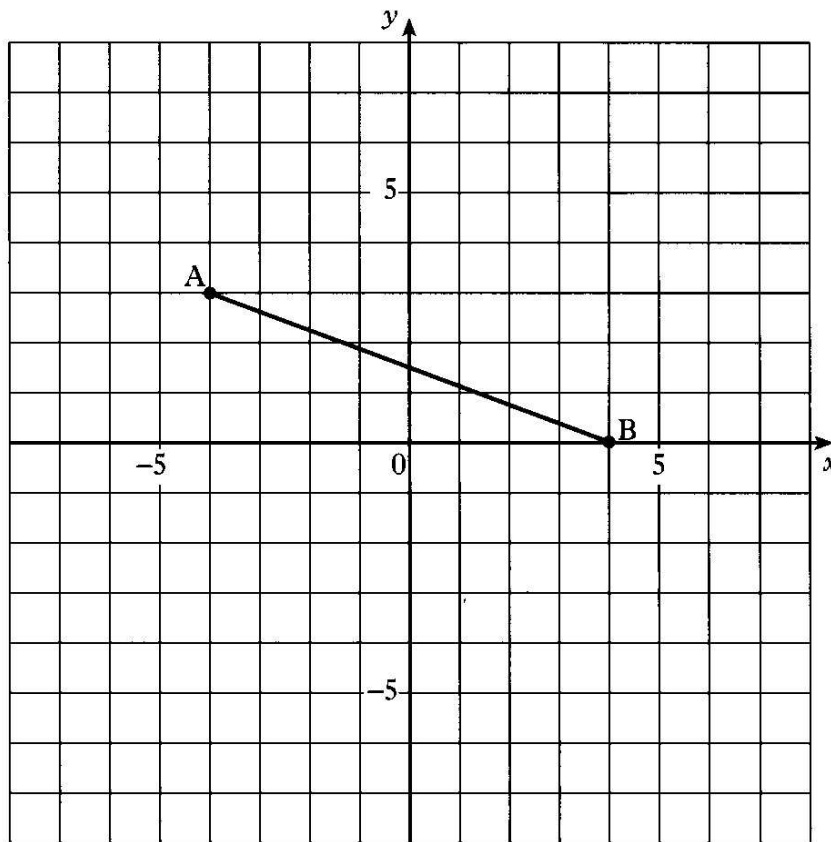
Calculate the gradient of the line AB.

2

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?

1

(*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?

2

[Turn over

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

Temperature of Supermarket Freezer
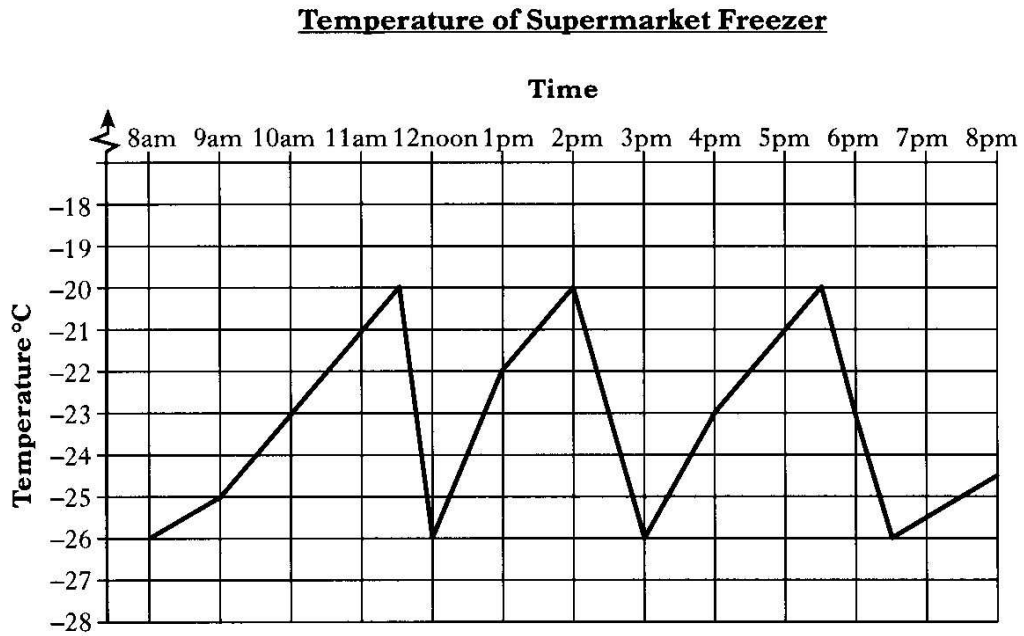
(a) From 8am, how long did it take for the temperature to rise to −20 °C?

1

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

3

Marks

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.

3

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

1

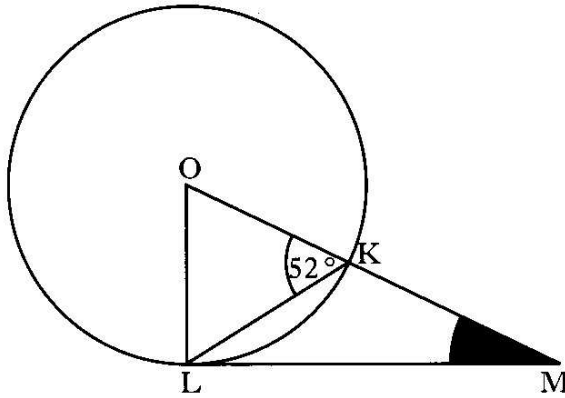**[Turn over for Question 9 on *Page ten***

9.

In the diagram above with circle centre O:

- LM is a tangent to the circle at L
- OM intersects the circle at K
- Angle OKL = 52°.

Calculate the size of the shaded angle OML.

[END OF QUESTION PAPER]

G

	KU	RE
Total marks		

2500/404

MATHEMATICS
STANDARD GRADE
General Level
Paper 2

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Forename(s)   Surname

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in a right angled
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Gradient:

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1. The Sharkey family is going on holiday to France.

They will stay at the "Prenez Les Bains" campsite.

Prenez Les Bains	Tent holiday		Mobile Home holiday	
Start Date	Cost for 7 nights	Cost per extra night	Cost for 7 nights	Cost per extra night
26 June – 2 July	495	39	585	58
3 July – 9 July	535	41	615	65
10 July – 30 July	645	46	825	72
31 July – 13 Aug	699	47	880	75
14 Aug – 28 Aug	670	39	845	73

The family chooses a mobile home holiday.

Their holiday will start on 15 July and the family will stay for 12 nights.

Use the table above to calculate the cost of the holiday.

3

[Turn over
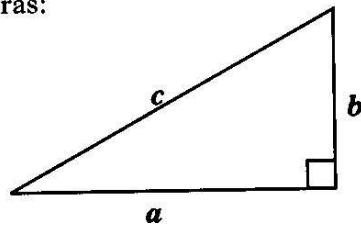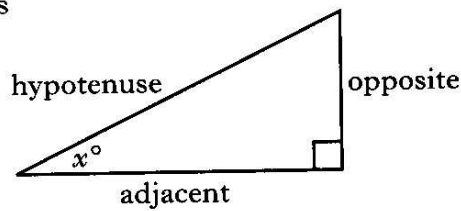
2. Carly bought a new printer for her computer.

The time taken to print a document is proportional to the number of pages printed.

It takes 7 minutes to print a document with 63 pages.

How many pages can be printed in half an hour?

3

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°.

180 cm

12°

Horizontal distance
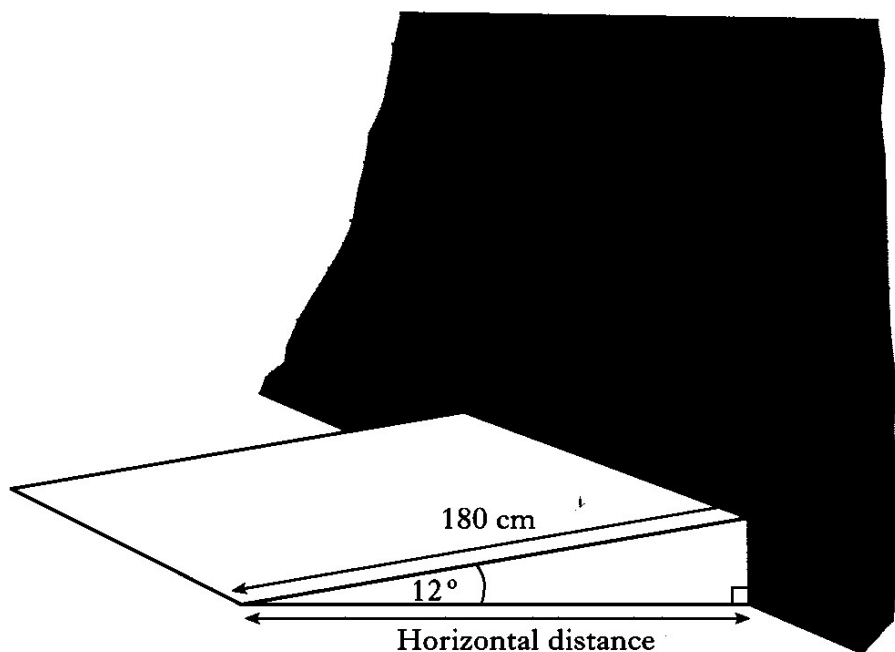
Calculate the horizontal distance.

Round your answer to one decimal place.
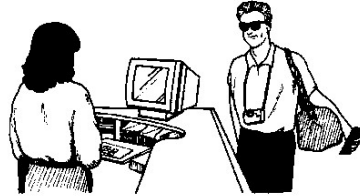
Do not use a scale drawing.

4

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?

4

[Turn over

6. (*a*) Factorise

$$6a + 15b.$$

(*b*) Solve algebraically

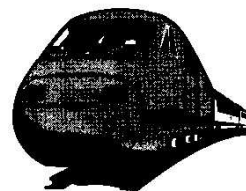$$4x - 3 = x + 21.$$

2

3

Page eight

7. Amy and Brian travel from Dundee to Stonehaven.

The distance between Dundee and Stonehaven is 80 kilometres.

Amy takes 1 hour 30 minutes to travel by car.

Brian takes the train which travels at an average speed of 60 kilometres per hour.
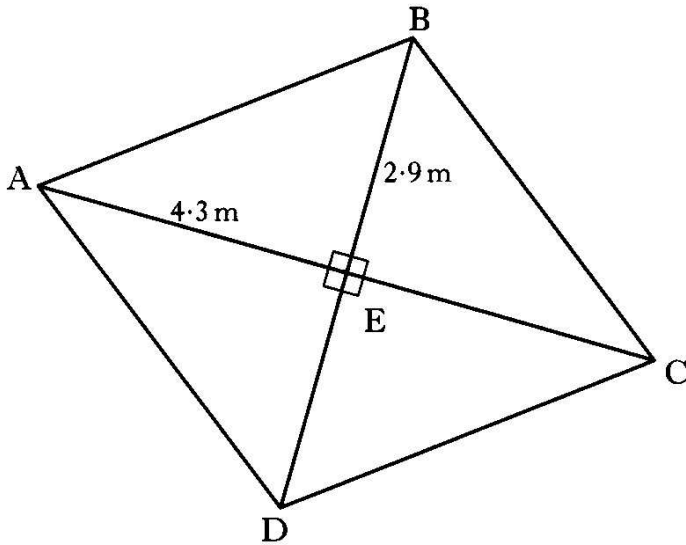
What is the difference between their journey times?

4

[Turn over

8. ABCD is a rhombus.

AE = 4·3 metres and BE = 2·9 metres.

Calculate the perimeter of the rhombus.

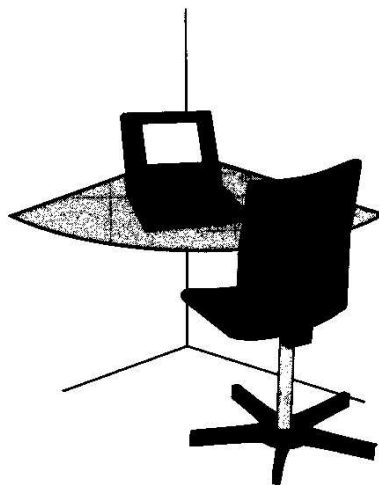**Do not use a scale drawing.**

4

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

The measurement shown is in metres.

0·75 m

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

2

(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?

2

Marks

DO NOT
WRITE IN
THIS
MARGIN

KU | RE

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

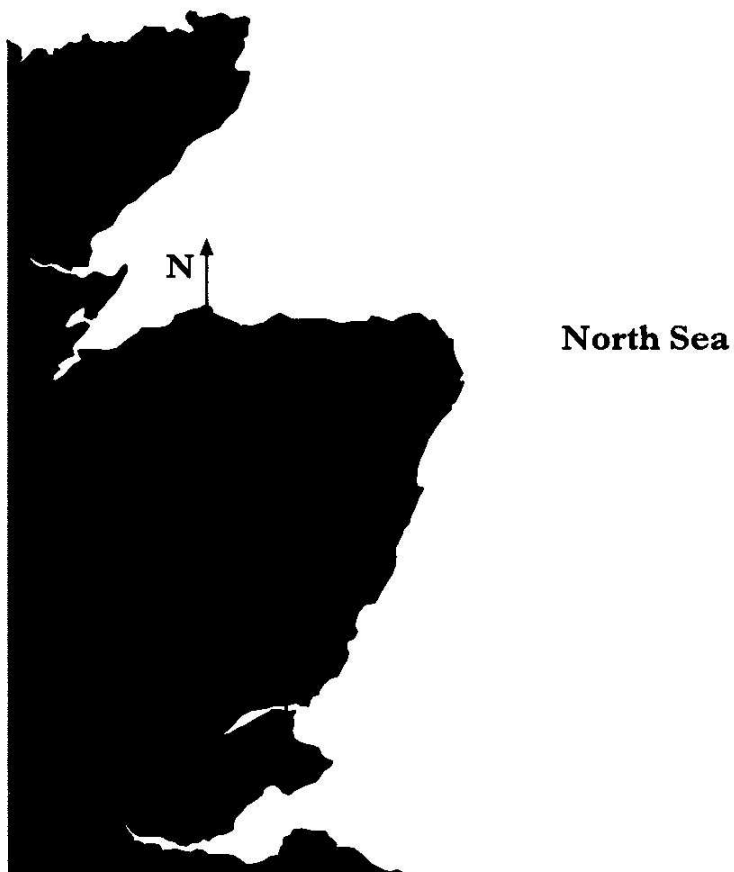Will Maria's mother save money when the nursery changes to the hourly rate?

Give a reason for your answer.

3

11. The diagram below shows the positions of Lossiemouth and Leuchars.

A ship in the North Sea is on a bearing of 110° from Lossiemouth and 075° from Leuchars.

Show the position of the ship on the diagram below.

N

North Sea

3

[Turn over for Question 12 on *Page fourteen*

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]