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NATIONAL QUALIFICATIONS 2013

MATHEMATICS
STANDARD GRADE

General Level

Paper 1

Non-calculator

FRIDAY, 3 MAY 10.40 AM – 11.15 AM

	KU	RE
Paper 1		
Paper 2		
Total		



* 2 5 0 0 2 9 0 1 *

2500/29/01

Fill in these boxes and read what is printed below.

Full name of centre

Town

Forename(s)

Surname

Number of seat

Date of birth

Day

Month

Year

Scottish candidate number

1 You may not use a calculator.

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Use **blue** or **black ink**. Pencil may be used for graphs and diagrams only.

SQA

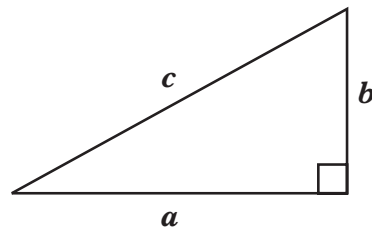


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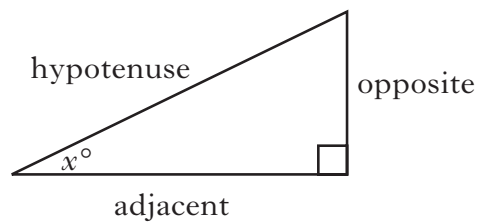
Circumference of a circle:	$C = \pi d$
Area of a circle:	$A = \pi r^2$
Curved surface area of a cylinder:	$A = 2\pi rh$
Volume of a cylinder:	$V = \pi r^2 h$
Volume of a triangular prism:	$V = Ah$

Theorem of Pythagoras:



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

Trigonometric ratios
in a right angled
triangle:

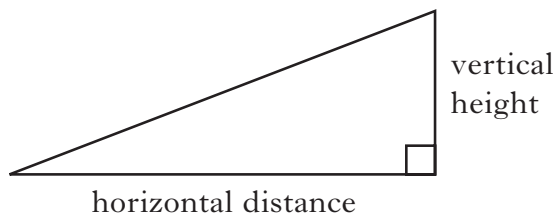


$$\tan x^\circ = \frac{\text{opposite}}{\text{adjacent}}$$

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

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

Gradient:



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



* 2 5 0 0 2 9 0 1 0 2 *

1. Carry out the following calculations.

(a) $306.5 - 214.78$

(b) 9.53×300

(c) $2.58 \div 4$

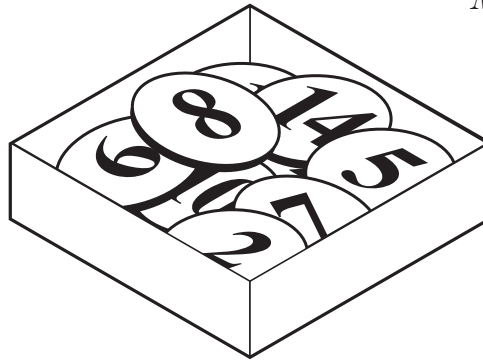
(d) 70% of 26

Marks	KU	RE
1		
1		
1		
2		



2. A box contains counters numbered from 1 to 14.

A counter is chosen at random.



What is the probability that this counter has a number greater than 9?

Marks

[illegible]

2



- Marks*

A wooden bed frame with a headboard and footboard, featuring vertical slats and a mattress with a patterned coverlet.

Find the sale price of this bed.

3

-
- A modern, white and black tram or light rail vehicle is shown stopped at a station platform. The vehicle has a sleek, aerodynamic design with large windows and a prominent front grille. It is positioned on tracks, and the platform is visible on the left side of the frame.

All trams have the same journey times.

Part of the timetable is shown below.

Station	Tram 1	Tram 2
Crown	0956	1002
Union	1011	
Telford	1018	
Ferry		1044

Complete this timetable.

3



6. (a) At 6.00 am the temperature in Edinburgh was -13°C .
At 10.00 am the temperature was -5°C .



Marks

KU	RE
1	
1	

By how many degrees had the temperature risen?

- (b) At 3.00 pm the temperature had risen a further 7 degrees.
What was the temperature at 3.00 pm?



Marks



Number of dots (D)	1	2	3	4	5		14
Number of lines (L)	3	5					

2

2

2

[illegible]

8. (a) A pack of 500 sheets of paper is 5.25 cm thick.



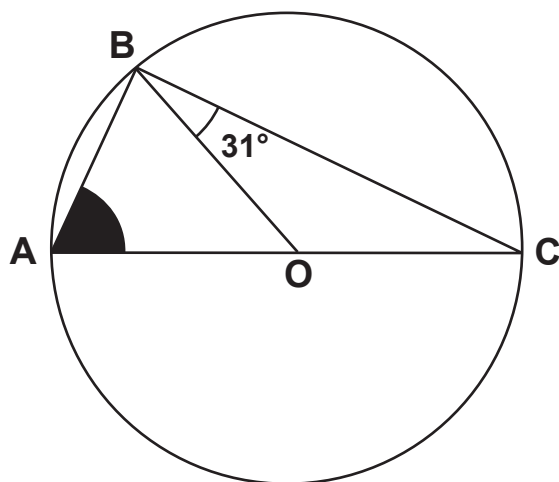
Calculate the thickness of 1 sheet of paper.

- (b) Write this answer in scientific notation.

Marks

KU	RE
1	
2	





- Marks*

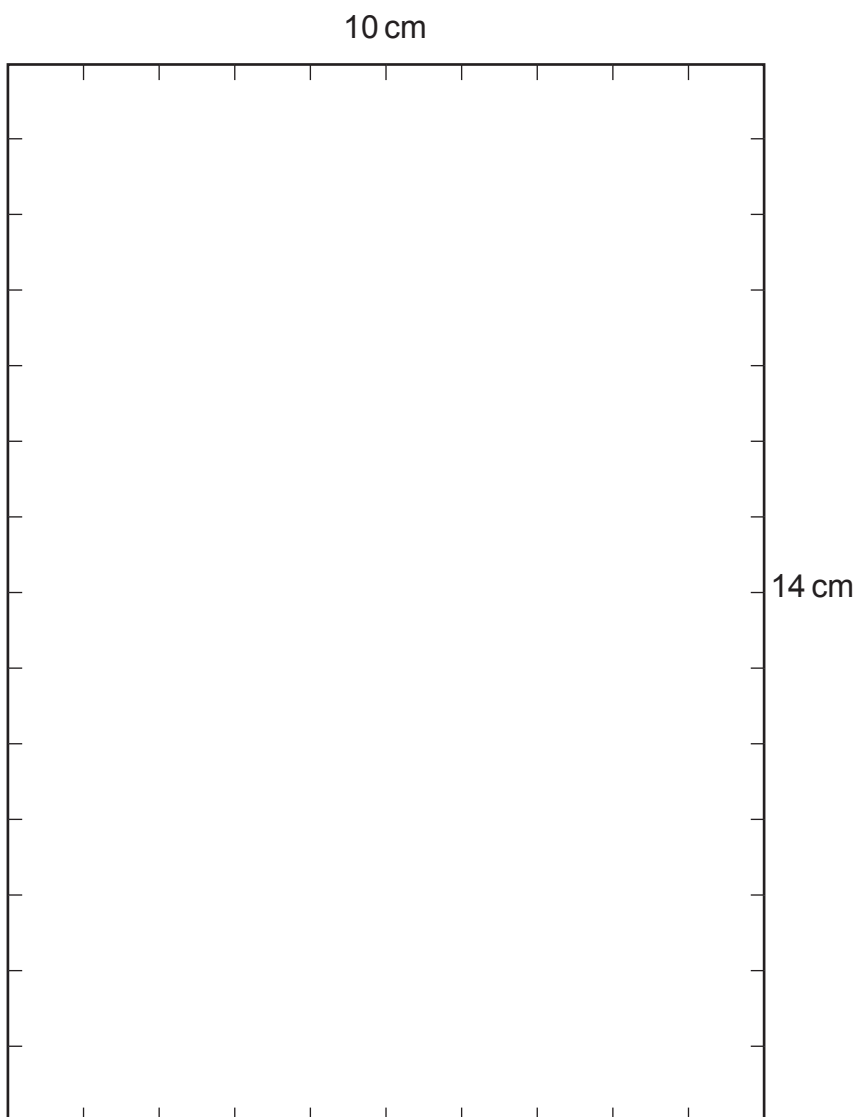
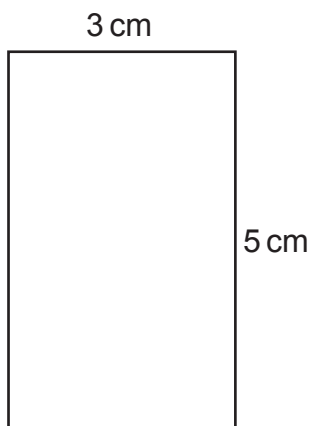
KU	RE
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[illegible]

10. This rectangle measures 5 cm by 3 cm.

Rectangles measuring 5 cm by 3 cm are to be fitted, **without overlapping**, on the 14 cm by 10 cm box below.

Draw these rectangles on the box to show the **maximum** number which can be fitted.



Marks	KU	RE
3		

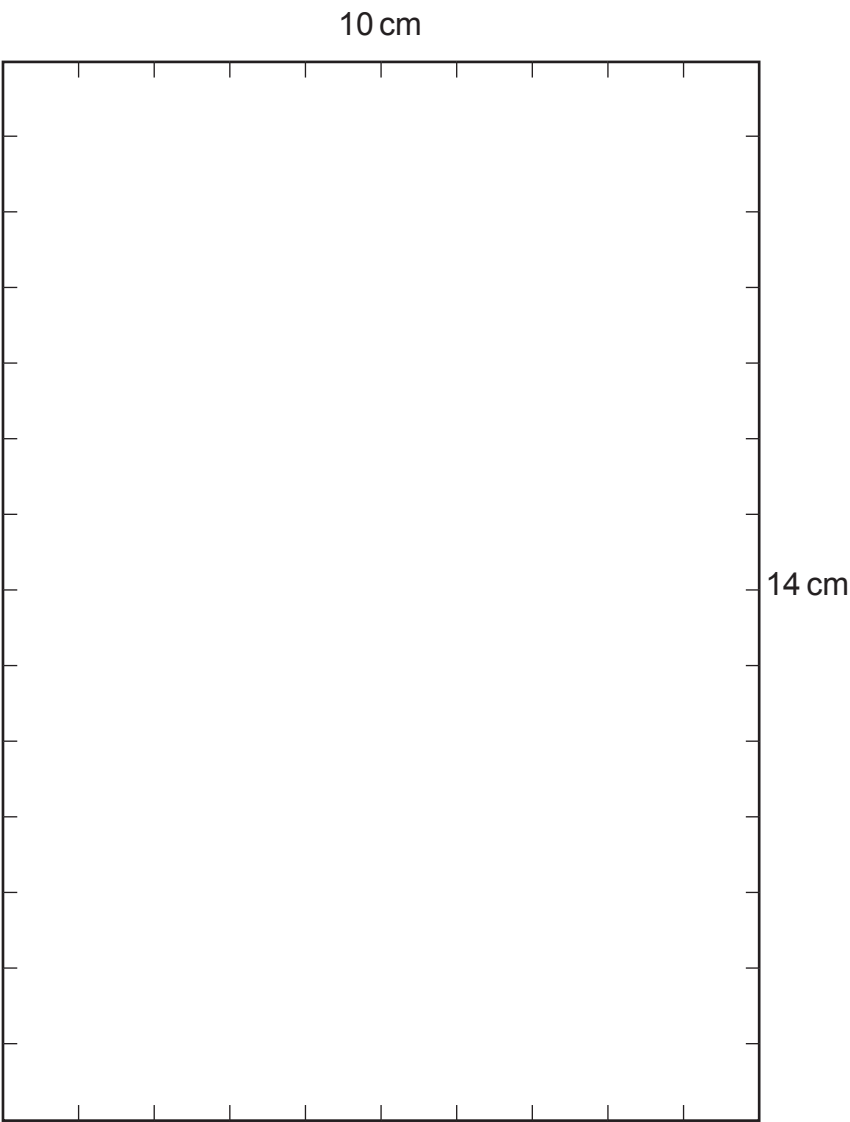
Spare boxes can be found on *Pages twelve and thirteen*.

[END OF QUESTION PAPER]

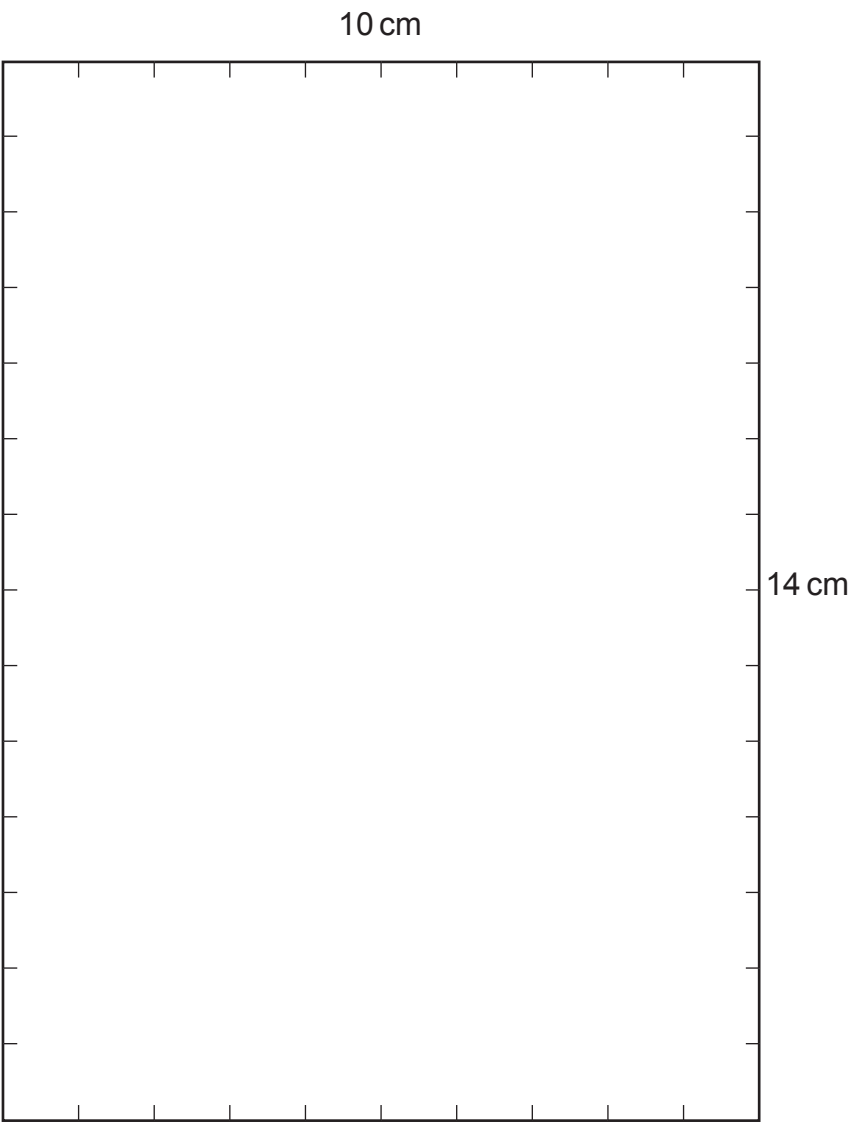


* 2 5 0 0 2 9 0 1 1 1 *

Spare box for Question 10



Spare box for Question 10



ADDITIONAL SPACE FOR ANSWERS

<i>Marks</i>	KU	RE



ADDITIONAL SPACE FOR ANSWERS

Marks

KU	RE



* 2 5 0 0 2 9 0 1 1 5 *

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* 2 5 0 0 2 9 0 1 1 6 *

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NATIONAL QUALIFICATIONS 2013

MATHEMATICS
STANDARD GRADE
General Level
Paper 2

G

KU RE

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2500/29/02

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SQA
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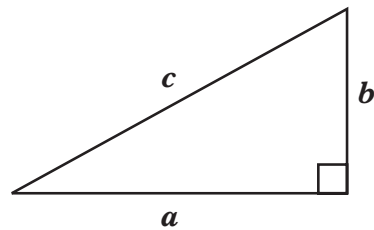


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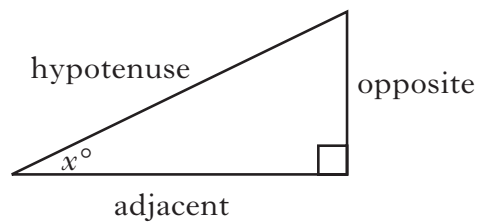
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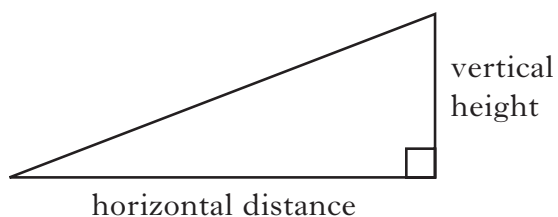


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1. Donna is a member of a fitness club. Her membership fee is £450 per year. Next year the membership fee will increase by 6.5%. What will Donna's membership fee be next year?



<i>Marks</i>	KU	RE
3		



- David asked twenty of his classmates how many books they had downloaded.

His results are shown below.

8	6	11	15	12	12	9	32	16	17
24	33	41	26	37	35	16	17	5	32

Construct an ordered stem and leaf diagram to display the results.

Marks

KU	RE
----	----

3



How much rent will Ciara pay in September?



KU	RE
----	----

3



4. The Scouts have decided to sell locally sourced vegetables.

Maria wants to buy four different vegetables.

She has a choice of potatoes, carrots, onions, turnips and leeks.

The cost of each vegetable is shown in the table below.



<i>Vegetable</i>	<i>Cost (£)</i>
Potatoes	2.49
Carrots	1.73
Onions	0.95
Turnips	1.23
Leeks	1.42


One possible selection and its cost are shown in the table below.

- (a) Complete the table to show the other selections and their costs.

SELECTION					
<i>Potatoes</i>	<i>Carrots</i>	<i>Onions</i>	<i>Turnips</i>	<i>Leeks</i>	Cost (£)
✓	✓		✓	✓	6.87

- (b) If Maria spends more than £6, the Scouts will deliver free of charge.

Which selection would **not** be delivered free of charge?

<i>Marks</i>		KU	RE
			
3			
1			



A right-angled triangle representing a garden. The horizontal base is labeled 20 m. The vertical side is labeled x . The hypotenuse is labeled 34 m. The word "Garden" is written inside the triangle. A right-angle symbol is shown at the vertex between the base and the vertical side.

Do not use a scale drawing.

[illegible]

4



6. The Elaxtra car runs on electricity.

It runs for eight hours before needing to be charged.

Will the car be able to travel 315 kilometres at an average speed of 42 kilometres per hour before needing to be recharged?

Give a reason for your answer.



Marks	KU	RE
3		

7. (a) Simplify

$$4(3p - 2) + 5.$$

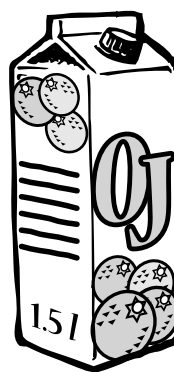
(b) Solve algebraically

$$4t - 2 \leq 34.$$

Marks	KU	RE
2		
2		



- Give a reason for your answer.**



KU	RE
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KU	RE

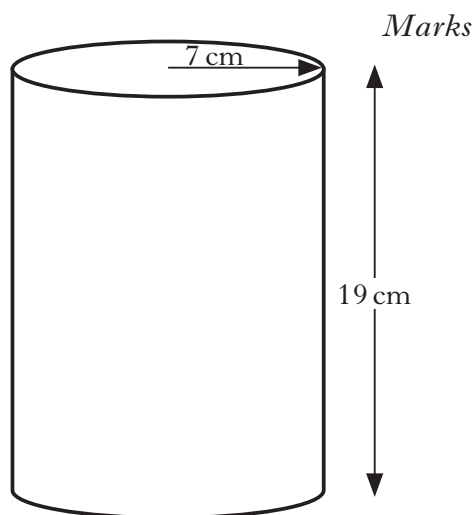
3



9. A cylinder has:

- radius = 7 centimetres
- height = 19 centimetres.

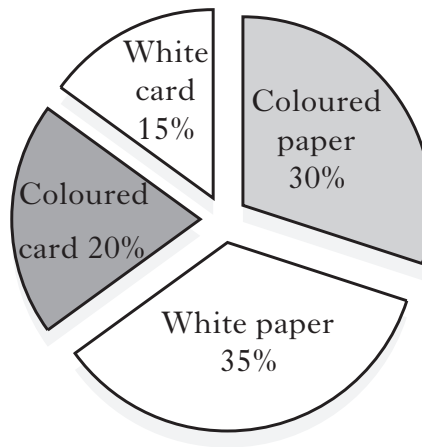
Calculate the curved surface area of the cylinder.



<i>Marks</i>	KU	RE



- Calculate the total weight of card and paper collected.



<i>Marks</i>	KU	RE
3		



11. Faisal and Jake are going to Belgium on holiday.
They book flights for £74 return per person.
In Belgium, they hire a caravan for 3 weeks.
The caravan costs 287·5 euros per week.
Find the total cost of their holiday **in pounds**.
(£1 = 1·15 Euros)



Marks

KU	RE
----	----

3



[illegible]

- The leaning of the clock tower is shown in the diagram below.



3



13. Jim works at Dario's Pizzas.

His basic rate of pay is
£5.42 per hour.

Overtime is paid at time and a half.

Last week his gross pay was
£216.80.

He worked 28 hours at the basic rate.

How many hours of overtime did Jim work last week?



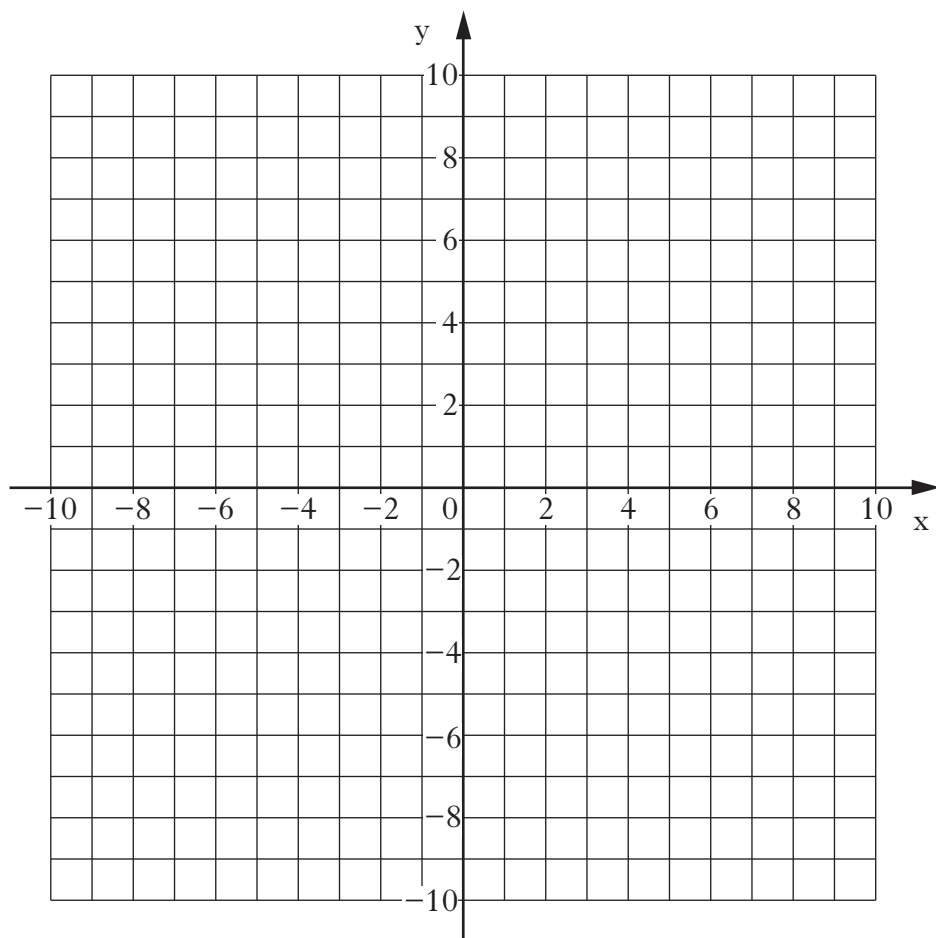
Marks

KU	RE

4



14. (a) On the grid below, plot the points A $(-6,4)$ and B $(5,-1)$.



- (b) Find the gradient of line AB.

Marks

KU	RE
1	
2	



- 15.** In a drum kit, the diameter of the large drum is twice the diameter of the small drum.

The small drum has a radius of 30 cm.

Calculate the circumference of the large drum.



[END OF QUESTION PAPER]



ADDITIONAL SPACE FOR ANSWERS

<i>Marks</i>	KU	RE



ADDITIONAL SPACE FOR ANSWERS

Marks

KU	RE



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