Surname	Centre Number	Candidate Number
First name(s)		0

GCSE

S25-3300U30-1

3300U30-1

THURSDAY, 15 MAY 2025 – MORNING

MATHEMATICS
UNIT 1: NON-CALCULATOR INTERMEDIATE TIER

1 hour 45 minutes

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**6**	
2.	**2**	
3.	**2**	
4.	**3**	
5.	**3**	
6.	**5**	
7.	**4**	
8.	**3**	
9.	**7**	
10.	**3**	
11.	**2**	
12.	**6**	
13.	**6**	
14.	**4**	
15.	**4**	
16.	**3**	
17.	**4**	
18.	**6**	
19.	**2**	
20.	**2**	
21.	**3**	
Total	**80**	

ADDITIONAL MATERIALS

The use of a calculator is not permitted in this examination.

A ruler, protractor and a pair of compasses may be required.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided.

If you run out of space, use the additional page at the back of the booklet. Question numbers must be given for all work written on the additional page.

Take π as 3·14.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

The number of marks is given in brackets at the end of each question or part-question.

In question **9**, the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.

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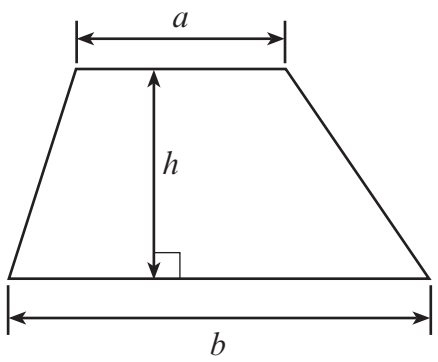
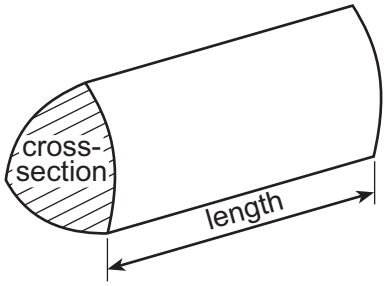
Formula List – Intermediate Tier

Area of trapezium $= \frac{1}{2}(a + b)h$



Volume of prism = area of cross-section × length



Examiner only

1. (a) Calculate $7^2 \times 2^3$. [2]

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(b) Calculate $0{\cdot}04 \times 0{\cdot}9$. [1]

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(c) Calculate 11% of 8400. [2]

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(d) Write down the next two numbers in the following sequence. [1]

18, 16, 12, 6, ... , ...

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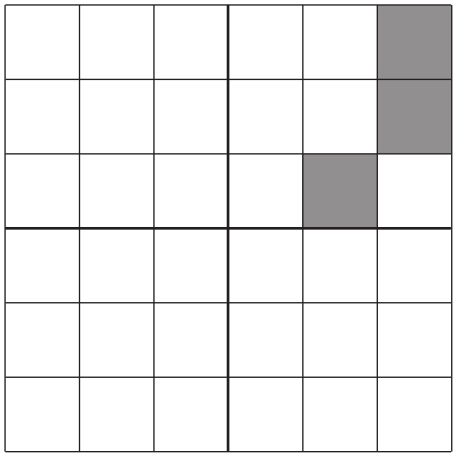
2. Shade the least number of squares so that the grid below has rotational symmetry of order 4. [2]



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Examiner only

3. **Estimate** the value of 89 × 6349.
You must show all your working. [2]

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4. Write 0·62, 68% and $\frac{13}{20}$ in ascending order.
You must show all your working. [3]

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Smallest value ⟶ Greatest value

5. In the diagram below:
- *EG* is a straight line
- *FGH* is an isosceles triangle.

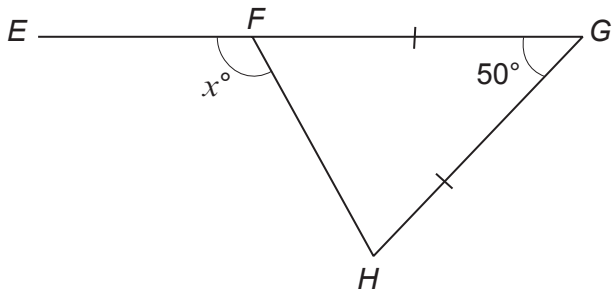

Diagram not drawn to scale

Calculate the value of x. [3]

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Examiner only

6. Mari and Ranvir each think of a number.
Here are some clues to find their numbers.

Mari's number	Ranvir's number
A whole number less than 20 A multiple of 6	Half of Ranvir's number is $\sqrt{25}$

The product of their numbers is between 100 and 150.

Find Mari's number and Ranvir's number, and calculate the product of their numbers.
You must show all your working. [5]

Mari's number is ..... Ranvir's number is .....

The product of Mari and Ranvir's numbers is .....

Examiner only

7. There are 200 pupils in a school hall.
The pupils are from Year 7 to Year 11.

One of the pupils is chosen at random.

(a) Complete the table below. [2]

	Year 7	Year 8	Year 9	Year 10	Year 11
Probability	0·2	0·3	0·26	0·14	

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(b) How many of the pupils are in Year 10? [2]

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8. Solve $12x - 3 = 7x + 15$. [3]

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9. *In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

The diagram below shows a trapezium, *ABCD*.

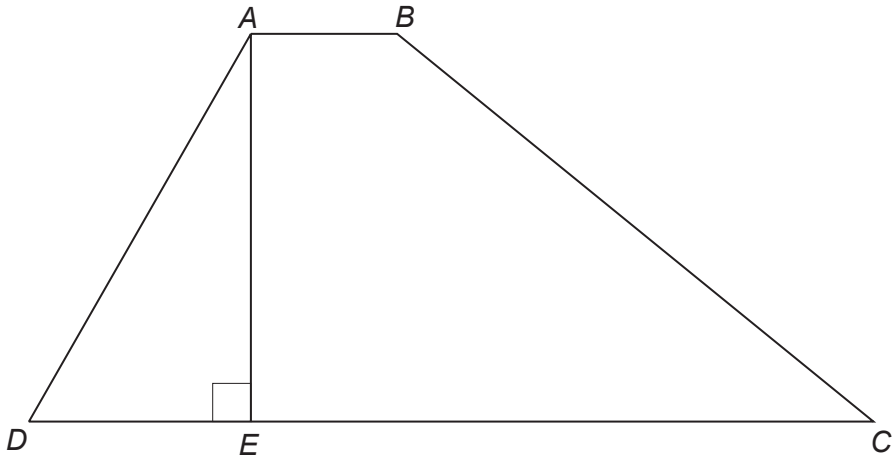

Diagram not drawn to scale

The area of the right-angled triangle, *AED*, is 24 cm^2.
The length of *AB* is 3 cm.
The length of *DE* is 4 cm.
The length of *EC* is 10 cm.

Calculate the area of the trapezium, *ABCD*.
You must show all your working. [5 + 2 OCW]

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10. Geraint cycles 18 miles in 1 hour 30 minutes.
Calculate Geraint's average speed.
Give your answer in miles per hour. [3]

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11.

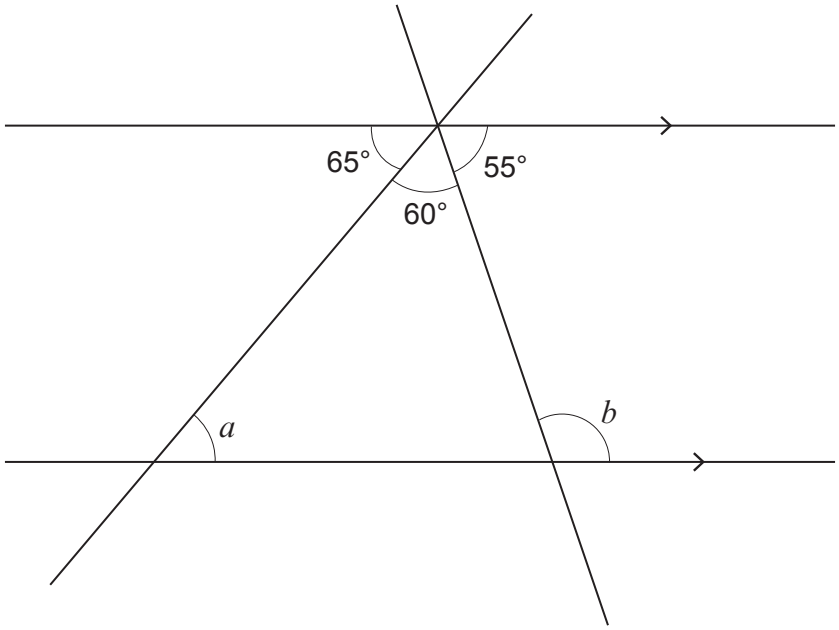

Diagram not drawn to scale

(a) Find the size of angle a. [1]

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(b) Find the size of angle b. [1]
Circle your answer.

55° 115° 120° 125° 135°

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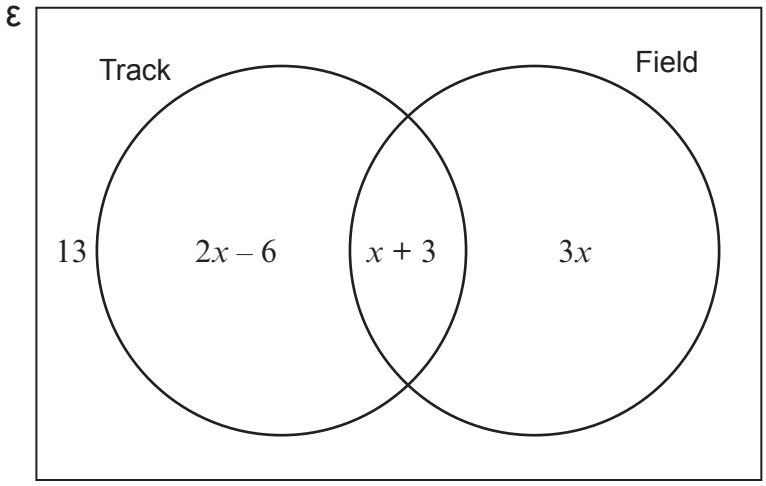
Examiner only

12. A group of 100 pupils attended their school sports day.
13 pupils did not compete in either Track or Field events.

The expressions in the following Venn diagram represent the number of pupils in each category.
The universal set, ε, contains all the pupils.



(a) Find the value of x. [4]

(b) One pupil is chosen at random from the group.
What is the probability that this pupil competed only in Track events? [2]

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13. The table below shows some of the values of $y = 2x^2 - 6$ for values of x from –3 to 2.

x	– 3	– 2	– 1	0	1	2
$y = 2x^2 - 6$		2	– 4	– 6		2

(a) Complete the table above. [2]

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(b) On the graph paper opposite, draw the graph of $y = 2x^2 - 6$ for values of x from –3 to 2. [2]

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(c) Draw the line $y = 1$ on the graph paper.
Write down the values of x where the line $y = 1$ cuts the curve $y = 2x^2 - 6$.
Give your answers correct to 1 decimal place. [2]

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x = ... and x = ...

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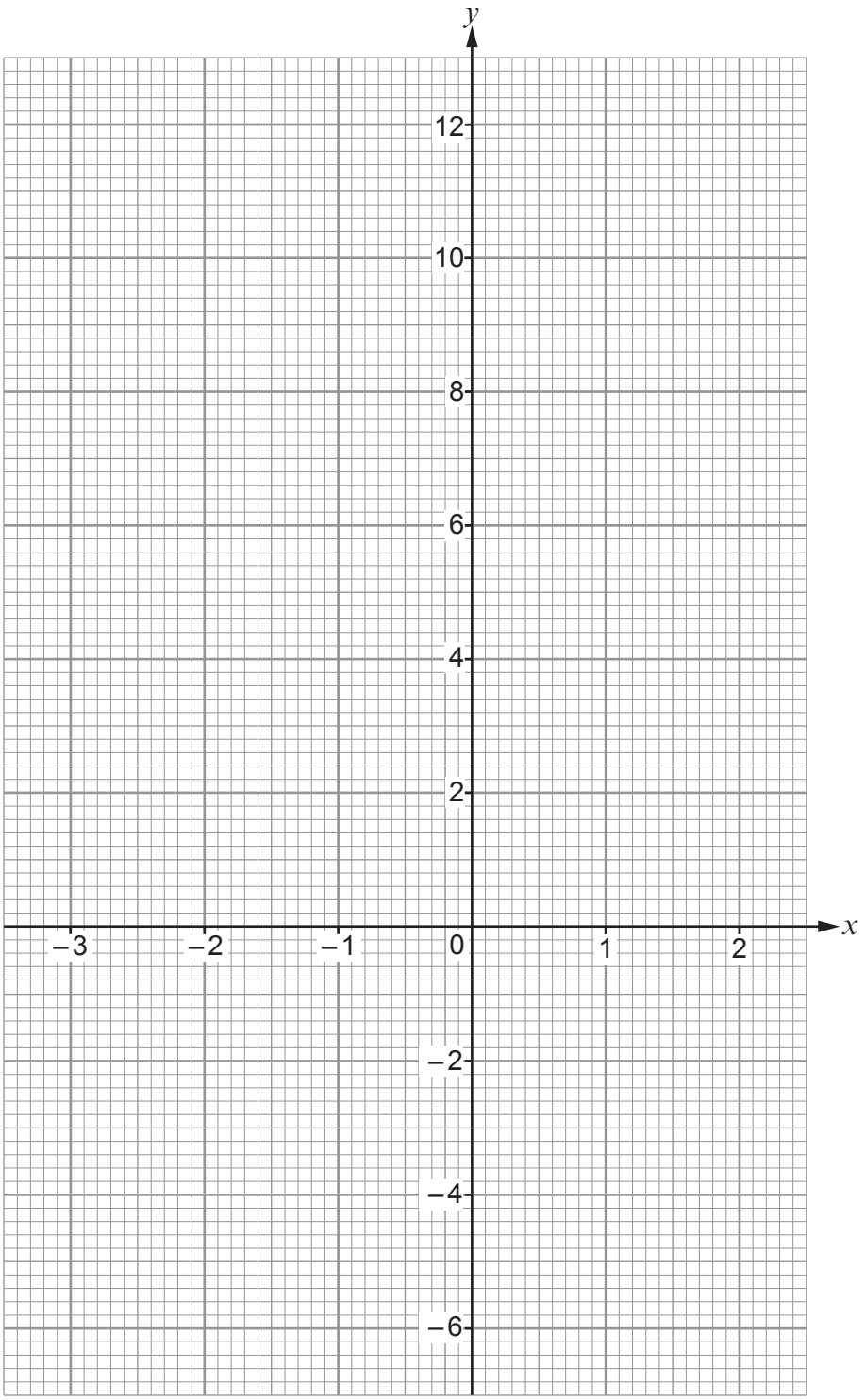


Examiner only

14. A mass is shared in the ratio 3 : 5.
The larger share is **44 lb (pounds)**.

Calculate the total mass.

Give your answer in **kilograms (kg)**.
You must show all your working. [4]

Examiner only

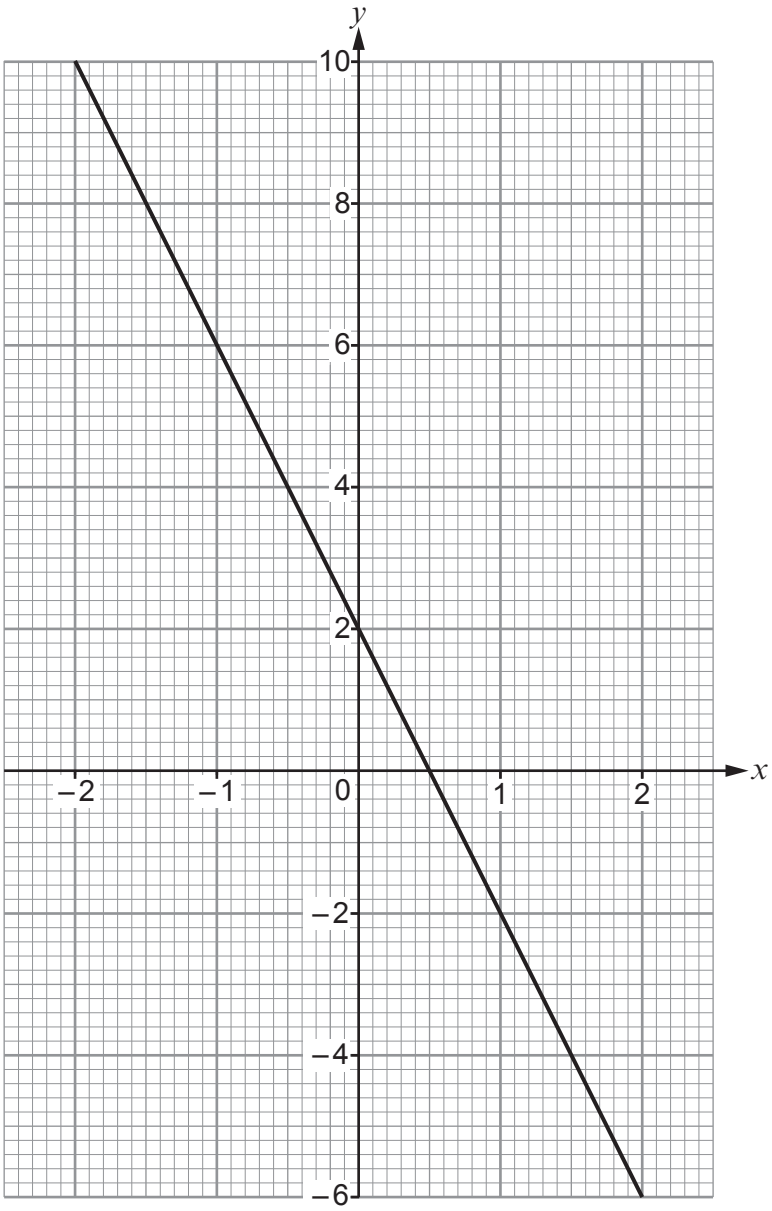
15. The mean of five whole numbers is 20.

The mean of three of these numbers is 22.
The other two numbers have a difference of 6.

Find **the other two** numbers. [4]

Examiner only

16. The diagram below shows the graph of a straight line for values of x from –2 to 2.



(a) Write down the gradient of the straight line in the diagram. [1]

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Gradient is .....

Examiner only

(b) Write down the equation of the straight line in the form $y = mx + c$, where m and c are whole numbers. [1]

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(c) Write down the equation of a different straight line that is parallel to the straight line in the diagram. [1]

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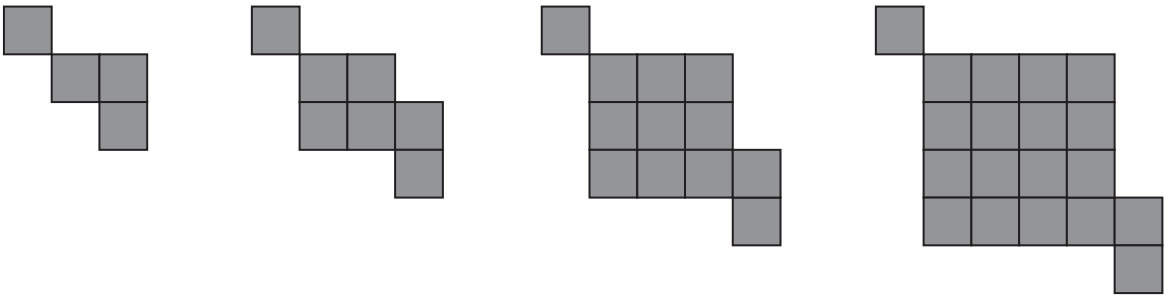
17. Grey tiles are used to make patterns as follows.



Pattern **1** Pattern **2** Pattern **3** Pattern **4**

(a) How many grey tiles would you need to make Pattern n? [2]

(b) What is the number of the pattern you would make when you use exactly 147 grey tiles? [2]

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18. 5 kg of cherries and 7 kg of grapes cost £88.
2 kg of cherries and 3 kg of grapes cost £36.

The cost of 1 kg of cherries is £x.
The cost of 1 kg of grapes is £y.

Use an algebraic method, not trial and improvement, to find the total cost of $\frac{1}{2}$ kg of cherries and 6 kg of grapes.

You must show all your working. [6]

The total cost of $\frac{1}{2}$ kg of cherries and 6 kg of grapes is £ .....

Examiner only

19. The length of each side of a square is 15 cm, correct to the nearest 1 cm.
Calculate the greatest possible perimeter of this square. [2]

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20. Factorise $x^2 - 11x + 24$. [2]

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Examiner only

21. In the diagram below, *ABCD* and *ABCE* are cyclic quadrilaterals.

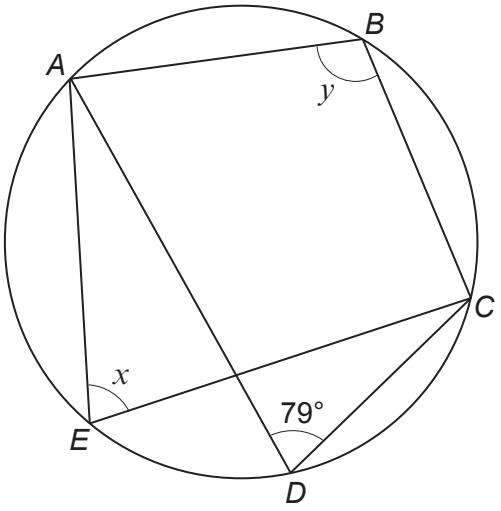

Diagram not drawn to scale

(a) Find the size of angle x. [1]

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.....

x = ... °

(b) Calculate the size of angle y.
State the **circle theorem** that you have used to find your answer. [2]

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y = ... °

Circle Theorem: .....

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END OF PAPER

Question number	Additional page, if required. Write the question number(s) in the left-hand margin.

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