Surname		Other Names	
Centre Number			Candidate Number									
Candidate Signature												

For Examiner's Use

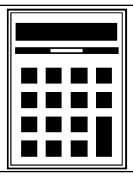
General Certificate of Secondary Education
June 2008

MATHEMATICS (MODULAR) (SPECIFICATION B) 43005/2F
Module 5 Foundation Tier
Paper 2 Calculator

F

Monday 2 June 2008 1.30 pm to 2.45 pm

For this paper you must have:
- a calculator
- mathematical instruments.



Time allowed: 1 hour 15 minutes

Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Answers written in margins or on blank pages will not be marked.
- Use a calculator where appropriate.
- Do all rough work in this book.
- If your calculator does not have a π button, take the value of π to be 3.14 unless another value is given in the question.

Information
- The maximum mark for this paper is 70.
- The marks for questions are shown in brackets.
- You may ask for more answer paper, graph paper and tracing paper. This must be tagged securely to this answer book.

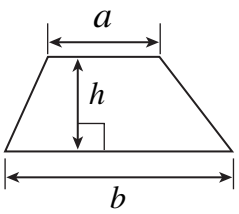
Advice
- In all calculations, show clearly how you work out your answer.

For Examiner's Use	
Pages	Mark
3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16	
TOTAL	
Examiner's Initials	

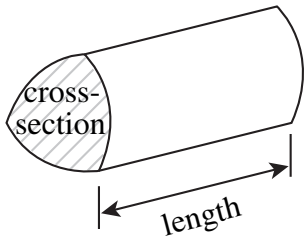
Formulae Sheet: Foundation Tier

You may need to use the following formulae:

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

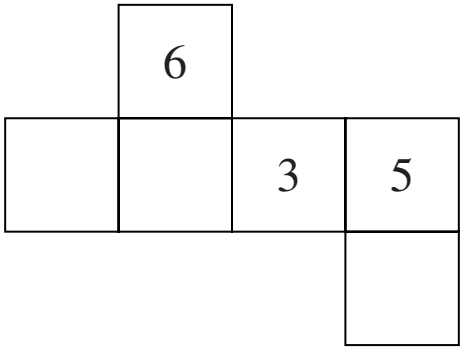


Volume of prism = area of cross-section × length



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

1 The diagram shows the net of a dice.
The sum of the numbers on opposite faces is 7.



Fill in the missing numbers.

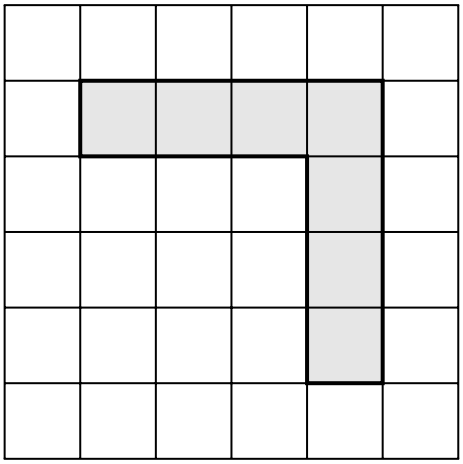
(2 marks)

Turn over for the next question

2

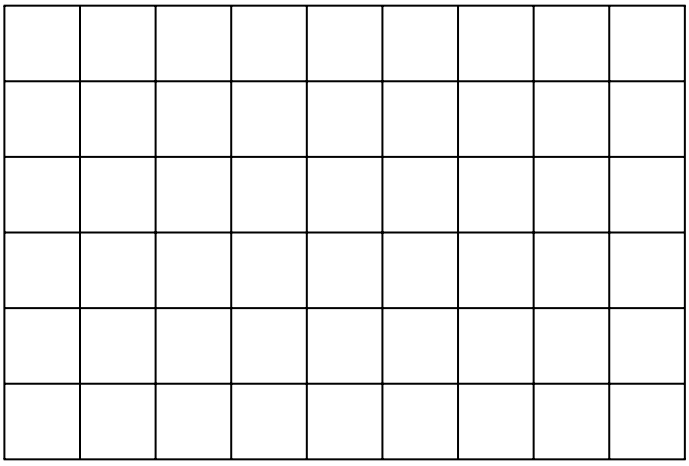
2 The grids for this question are made of squares of side 1 cm.

2 (a) Find the area of this shape.



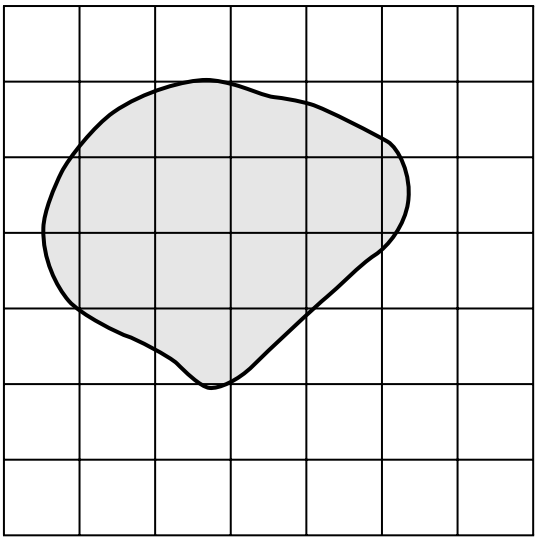
Answer ..... cm^2 *(1 mark)*

2 (b) On the grid, draw a rectangle with area 8 cm^2.



(2 marks)

2 (c) Estimate the area of this shape.



.....

.....

Answer ..... cm^2 *(2 marks)*

3 Draw an arrow from each number to its correct description.

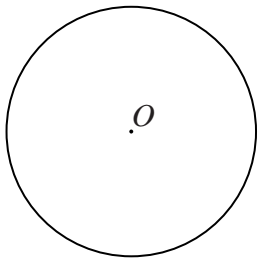
7	Factor of 34
8	Cube root of 1000
9	Factor of 42
10	25% of 32
	Square number

(4 marks)

9

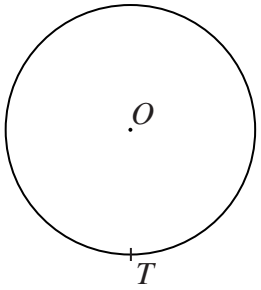
4 In each diagram, *O* is the centre of the circle.

4 (a) Draw a diameter on this circle.



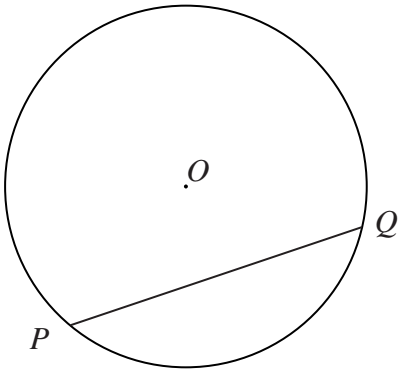
(1 mark)

4 (b) Draw a tangent to this circle at *T*.



(1 mark)

4 (c) A chord *PQ* has been drawn on the circle below.



4 (c) (i) Mark the midpoint of *PQ* and label it *M*.

(1 mark)

4 (c) (ii) Join *OM*.

What do you notice about the angle between *OM* and *PQ*?

.....

(1 mark)

5 Here is a sequence of numbers.

33 29 25 21 17

5 (a) Write down the next **two** numbers in the sequence.

Answer ..... and ..... *(2 marks)*

5 (b) What is the rule for continuing the sequence?

.....

(1 mark)

5 (c) Dora says the sequence stops when it gets to the number 1.
Eddie says it goes on forever.

Explain why Eddie is right.

.....

.....

.....

(1 mark)

Turn over for the next question

8

6

Ted's heating repairs
Does your heating need fixing?
At your service every day
Call 0555 1212

Ted uses this formula to work out his charges:

£40 for the call out plus £27 per hour

6 (a) Ted is called out to fix Ms O'Brien's heating.
It takes him 5 hours.

How much does Ted charge Ms O'Brien?

.....

.....

Answer £ ..... *(2 marks)*

6 (b) Ted charges Mr Patel £134.50

How many hours did it take Ted to fix Mr Patel's heating?

.....

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.....

Answer ..... hours *(3 marks)*

7 Here is a number pattern.

Line 1	1×1	=	1
Line 2	11×11	=	121
Line 3	111×111	=	12321
Line 4	1111×1111	=	1234321

7 (a) Complete line 5.

Line 5 11111×11111 = ...

(1 mark)

7 (b) Write down line 6.

Line 6 .....

(1 mark)

7 (c) The pattern breaks down after a few more lines.

Show where it breaks down and explain why.

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(3 marks)

10

8 Solve the equations.

8 (a) $4x = 20$

.....

Answer $x =$ ..... *(1 mark)*

8 (b) $y - 5 = 9$

.....

Answer $y =$ ..... *(1 mark)*

8 (c) $\frac{z}{2} = 6$

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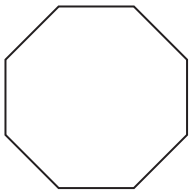
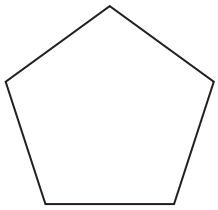
Answer $z =$ ..... *(1 mark)*

9 A regular octagon and a regular pentagon are shown.
They have the same perimeter.





Not drawn accurately

The length of the side of the octagon is 4.5 cm.

What is the length of the side of the pentagon?

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Answer ..... cm *(3 marks)*

10 Calculate

10 (a) 13^4

Answer ..... *(1 mark)*

10 (b) $\sqrt{38.44}$

Answer ..... *(1 mark)*

10 (c) $\dfrac{1}{0.004}$

Answer ..... *(1 mark)*

10 (d) $\dfrac{4.8}{9.24 + 3.55}$

10 (d) (i) Write down your full calculator display.

Answer ..... *(1 mark)*

10 (d) (ii) Give your answer to 1 decimal place.

Answer ..... *(1 mark)*

11 Simplify

11 (a) $p + 5p - 2p$

.....

Answer ..... *(1 mark)*

11 (b) $3q + 7t - 2q - 3t$

.....

.....

Answer ..... *(2 marks)*

11 (c) $t^2 \times t^3$

.....

Answer ..... *(1 mark)*

15

12 Which is larger, 20% of £5.25 or 25% of £4.24?
You **must** show your working.

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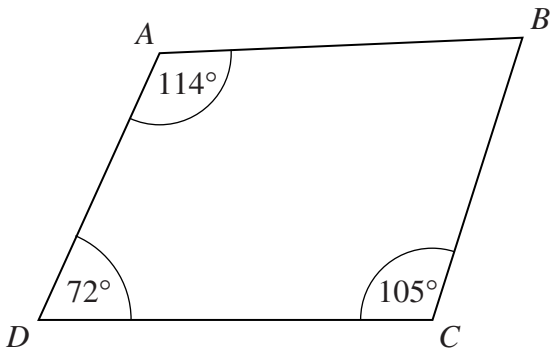
Answer ..... *(4 marks)*

13 The diagram shows a quadrilateral *ABCD*.
Angle *A* = 114°, angle *C* = 105° and angle *D* = 72°



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13 (a) Calculate angle *B*.

.....

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Answer ..... degrees *(2 marks)*

13 (b) Is *ABCD* a parallelogram?
Explain your answer.

.....

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(2 marks)

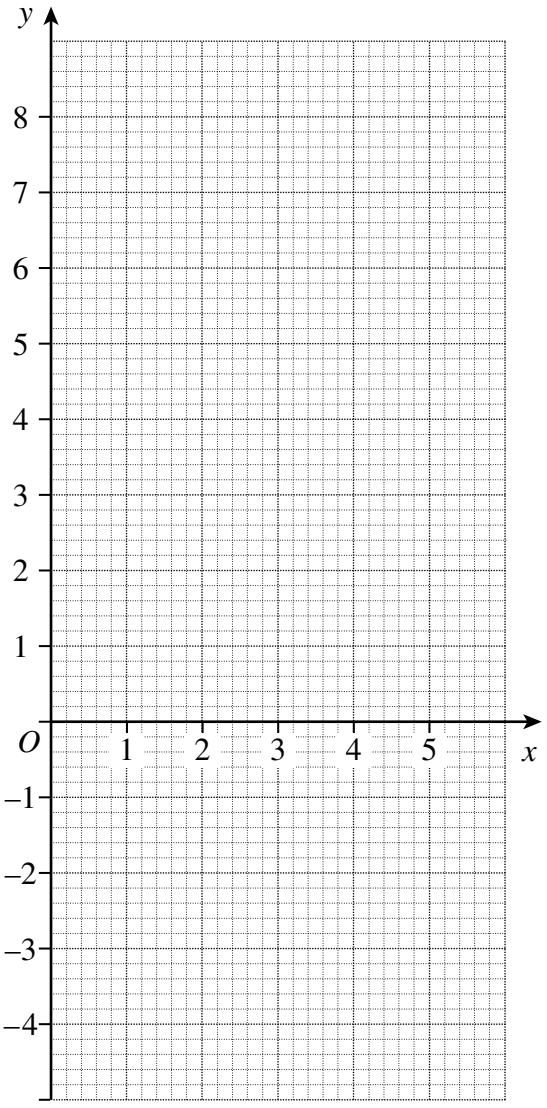
14 This is a table of values for $y = 7 - 2x$

x	0	3	5
y		1	

14 (a) Complete the table.

(1 mark)

14 (b) Draw the graph of $y = 7 - 2x$ for values of x from 0 to 5.

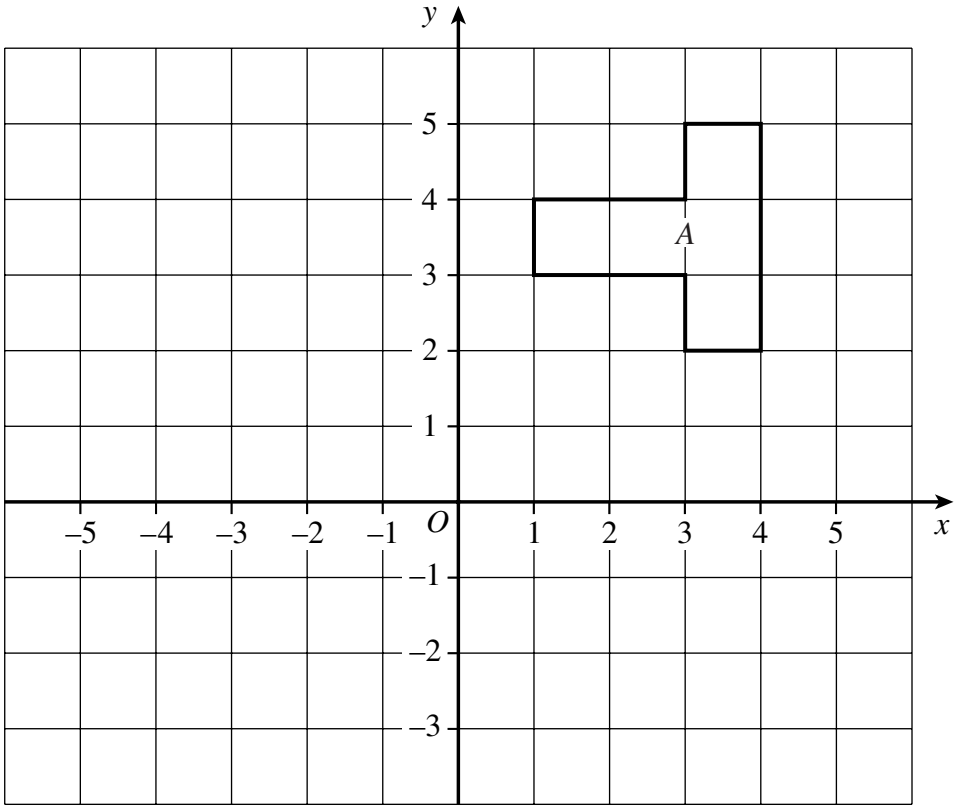


(2 marks)

11

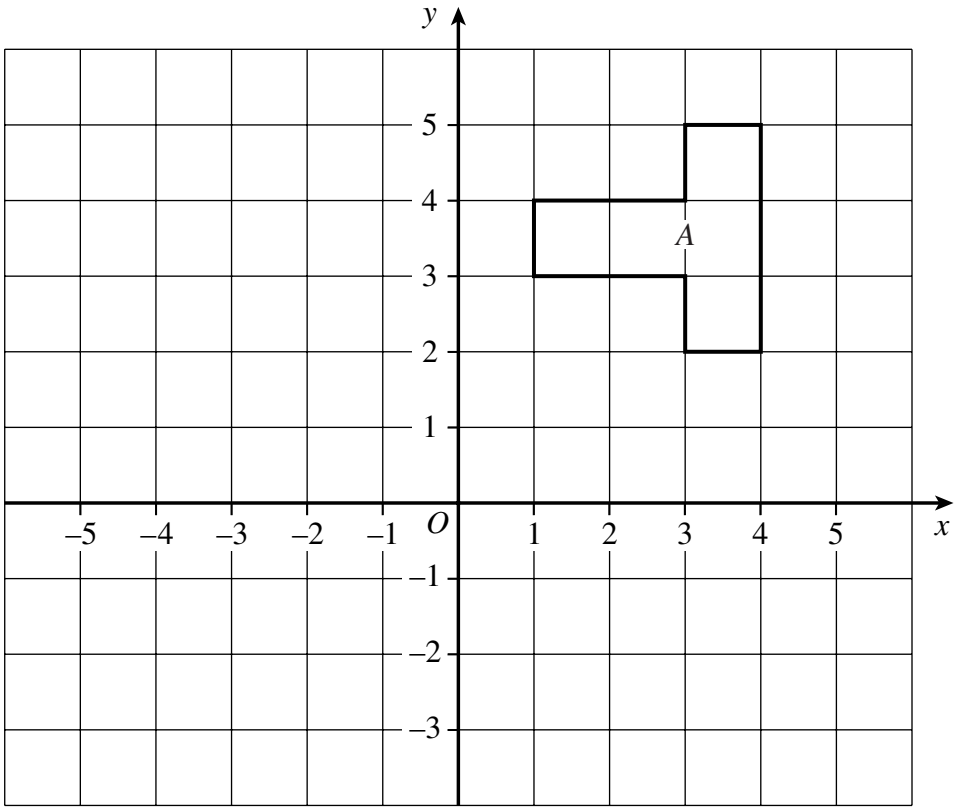
Turn over ▶

15 (a) Reflect shape *A* in the line $y = 2$



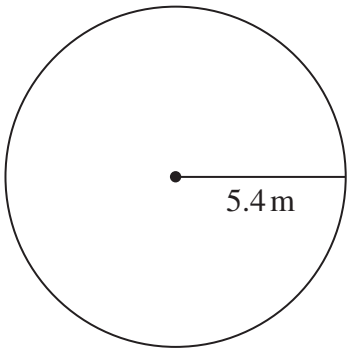
(2 marks)

15 (b) Translate shape *A* five units to the left and four units down.



(1 mark)

16 The diagram shows a circle of radius 5.4 metres.



Not drawn accurately

Calculate the area of the circle.
State the units of your answer.

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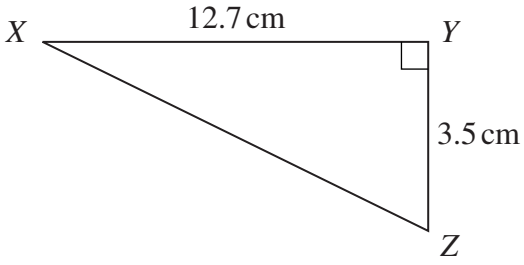
Answer ..... *(3 marks)*

17 In triangle *XYZ*, angle $Y = 90°$, $XY = 12.7$ cm and $YZ = 3.5$ cm



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Calculate *XZ*.

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.....

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Answer ..... cm *(3 marks)*

Turn over for the next question

9

18 Make d the subject of the formula $c = 5d + 2$

.....

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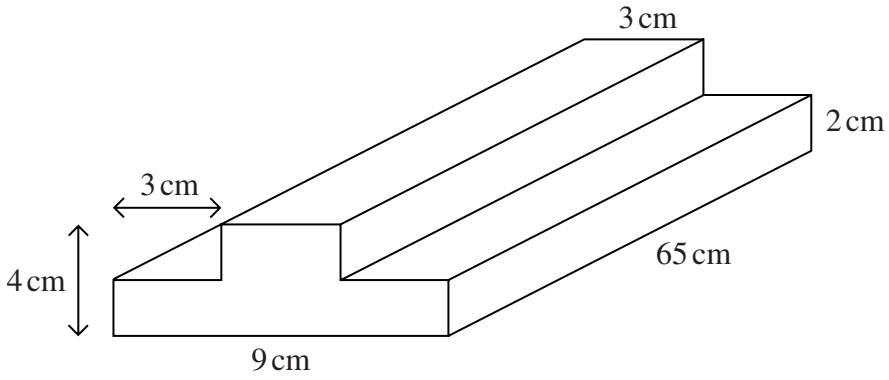
Answer $d =$ ..... *(2 marks)*

19 The diagram shows a block of wood with uniform cross-section.
The cross-section is made of rectangles.
The block is 65 cm long.



Not drawn accurately

Calculate the volume of the block.

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Answer ..... cm^3 *(4 marks)*

END OF QUESTIONS