Surname		Other Names	
Centre Number			Candidate Number									
Candidate Signature												

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General Certificate of Secondary Education
June 2006

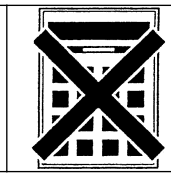
MATHEMATICS (MODULAR) (SPECIFICATION B) 33005/F1
Module 5 Foundation Tier
Paper 1 Non-Calculator

F

Monday 5 June 2006 1.30 pm to 2.30 pm

For this paper you must have:
- mathematical instruments

You must **not** use a calculator.



Time allowed: 1 hour

Instructions
- Use blue or black ink or ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- Answer the questions in the spaces provided.
- Do all rough work in this book.

Information
- The maximum mark for this paper is 60.
- 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.

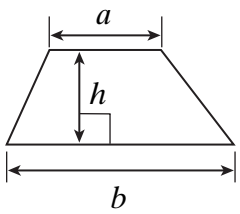
Advice
- In all calculations, show clearly how you work out your answer.

For Examiner's Use	
Pages	Mark
3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
TOTAL	
Examiner's Initials	

Formula Sheet: Foundation Tier

You may need to use the following formula:

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



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

1 The table shows the distances in nautical miles between four ports.

Dover			
182	**St Peter Port**		
205	27	**St Helier**	
106	99	125	**Portsmouth**

(a) What is the distance from St Peter Port to Portsmouth?

.....

Answer ..... nautical miles *(1 mark)*

(b) Which two ports are the greatest distance apart?

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

(c) Pedro sails from Dover to St Peter Port and then from St Peter Port to St Helier.

How far does Pedro sail altogether?

.....

.....

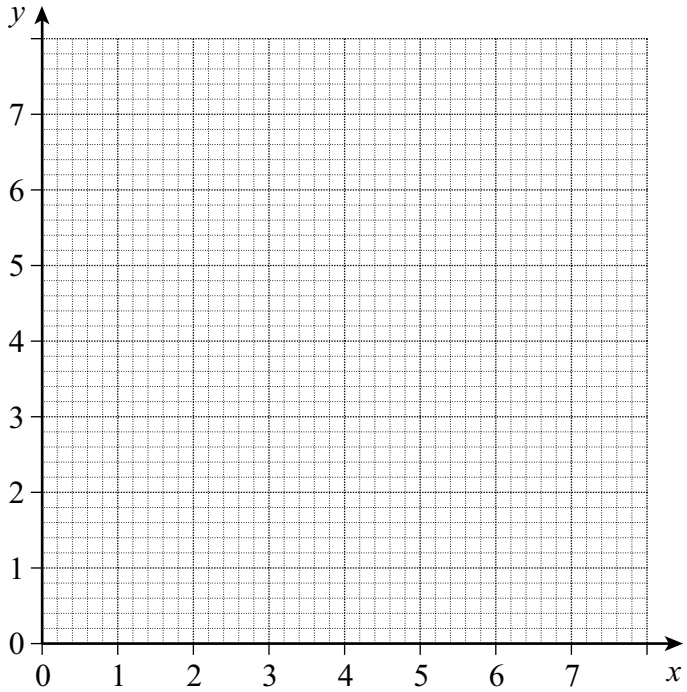
.....

Answer ..... nautical miles *(2 marks)*

4

2 (a) (i) On the grid plot and label the following points.

A (1, 4) *B* (5, 4) *C* (7, 2) *D* (0, 2)



(2 marks)

(ii) Join the points on your grid to form a quadrilateral *ABCD*.

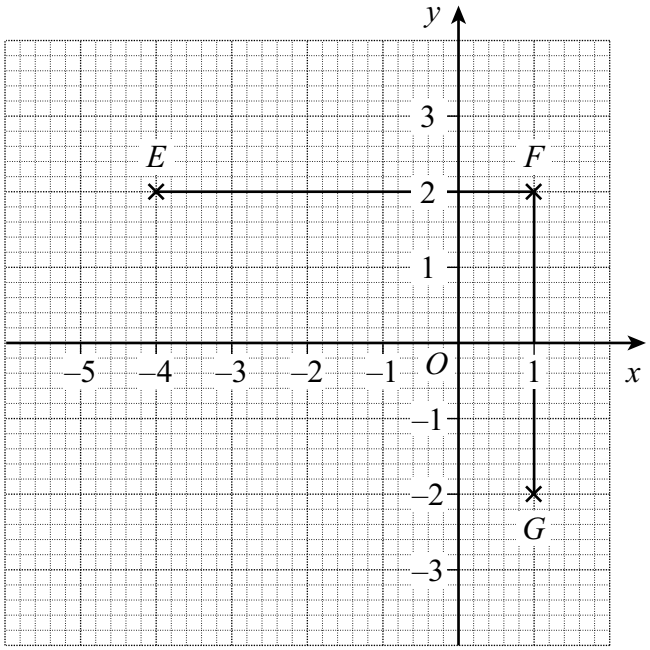
(1 mark)

(iii) Write down the special name of the quadrilateral *ABCD*.

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

(b) (i) *EFGH* is a rectangle.

Plot the point *H* on the grid to complete the rectangle.



(1 mark)

(ii) Write down the coordinates of the point *H*.

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

Turn over for the next question

6

3 A line OA is drawn.

(a) Measure the length of OA.

(i) Write down your answer in centimetres.

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

(ii) Write down your answer in millimetres.

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

(b) (i) Use your compasses to draw a circle with centre O and radius OA.

(1 mark)

(ii) Mark and label a point P on the circumference of the circle.

(1 mark)

(iii) Draw a tangent to the circle at P.

(1 mark)

4 (a) A sequence of numbers is shown.

3 7 11 15 …… ……

Write down the next two numbers in the sequence.

(2 marks)

(b) Another sequence of numbers is shown.

3 7 12 18 ……

Write down the next number in this sequence.

(1 mark)

(c) A different sequence begins

3 6 12 24 48

Write down a rule for this sequence.

Answer .....

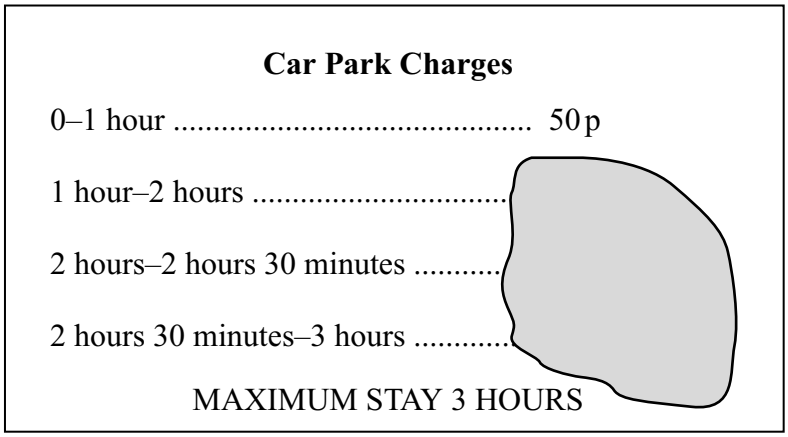
.....

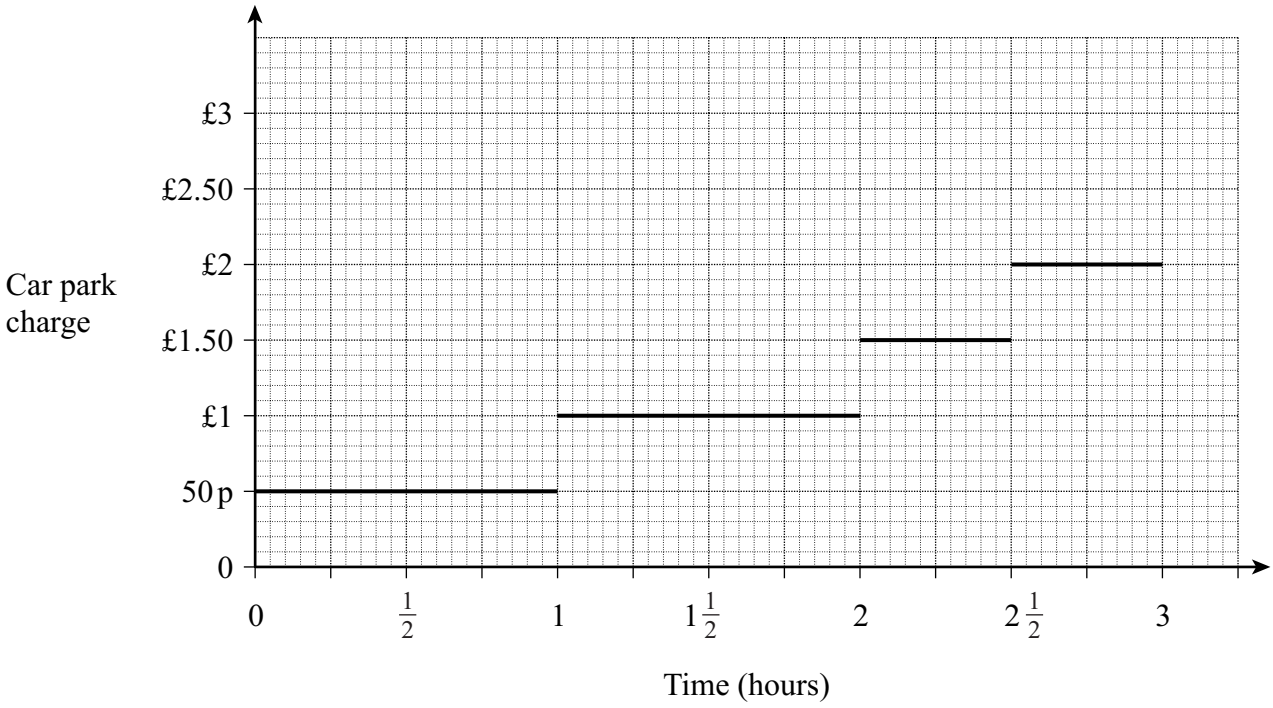
(1 mark)

Turn over for the next question

9

5 The sign and the graph show the charges for a short-stay car park.
Part of the sign is covered up.
The maximum stay allowed is 3 hours.





(a) How much is the charge to park for $1\frac{1}{4}$ hours?

Answer £ ..... *(1 mark)*

(b) A car is parked for the maximum stay allowed.

How much is the charge?

Answer £ ..... *(1 mark)*

(c) A blue car and a red car both enter the car park at the same time.
The red car leaves the car park ten minutes later than the blue car.
The charge for the red car is twice as much as the charge for the blue car.

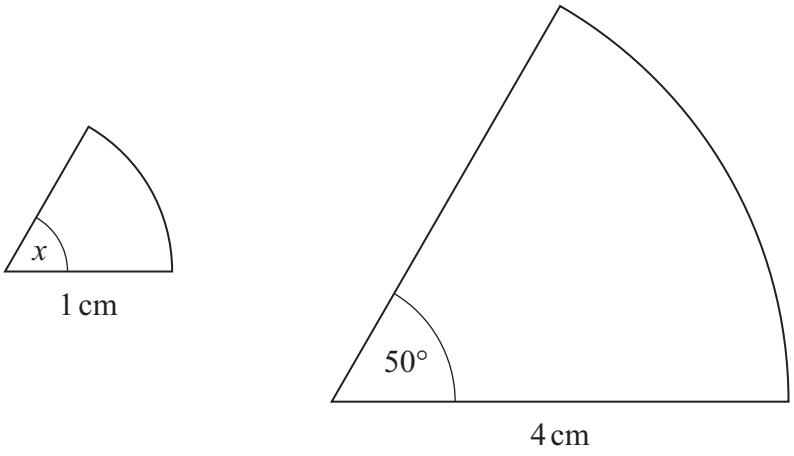
How much were the charges for the two cars?

.....

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

6 The diagram shows two similar shapes.

Not drawn accurately



(a) Write down the value of x.

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

(b) Write down the scale factor of the enlargement.

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

6

7 (a) Write down a square number that is greater than 1.

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

(b) Isaac is thinking of two numbers.
The sum of the numbers is 100.
One of the numbers is a square number greater than 1.

Write down **two** different possible pairs of values of the numbers.

.....

.....

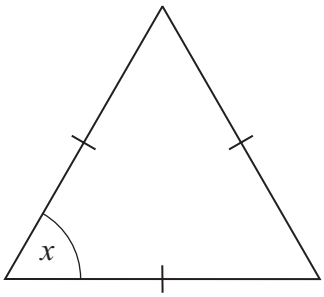
.....

.....

Answer ..... and .....

..... and ..... *(3 marks)*

8 (a) The diagram shows an equilateral triangle.



Not drawn accurately

(i) Write down the value of x.

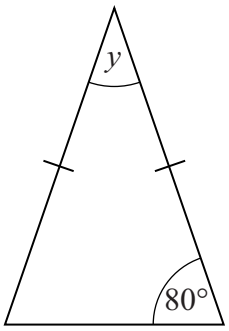
Answer ..... degrees *(1 mark)*

(ii) Circle the word in the list which describes angle x.

acute obtuse reflex right angle

(1 mark)

(b) The diagram shows an isosceles triangle.



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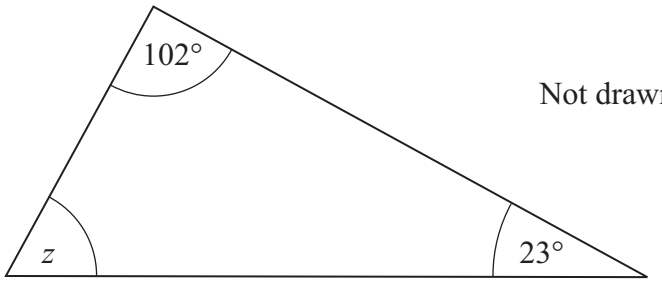
Work out the value of y.

.....

.....

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

(c) The diagram shows a triangle.



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Work out the value of z.

.....

.....

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

10

9 (a) To convert Celsius (°C) to Fahrenheit (°F), an approximate two-step rule is

Step 1:	Multiply by 2
Step 2:	Add 30

Use this rule to convert 20 °C to °F.

.....

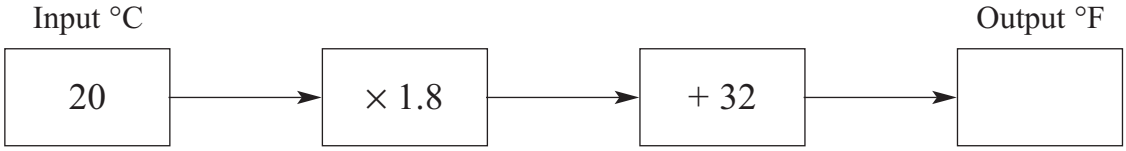
.....

.....

Answer ..... °F *(2 marks)*

(b) The flow diagram shows an exact rule to convert Celsius (°C) to Fahrenheit (°F).

Use the flow diagram to convert 20 °C to °F.



.....

.....

.....

Answer ..... °F *(2 marks)*

(c) Write down the difference between your answers to parts (a) and (b).

.....

Answer ..... °F *(1 mark)*

10 (a) Simplify $6p - p$

.....

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

(b) Simplify $3a + 5b - 2a + 4b$

.....

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

(c) Multiply out $4(x + 5)$

.....

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

11 (a) $5^2 = 25$

Write down the value of 500^2

.....

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

(b) $\sqrt{64} = 8$

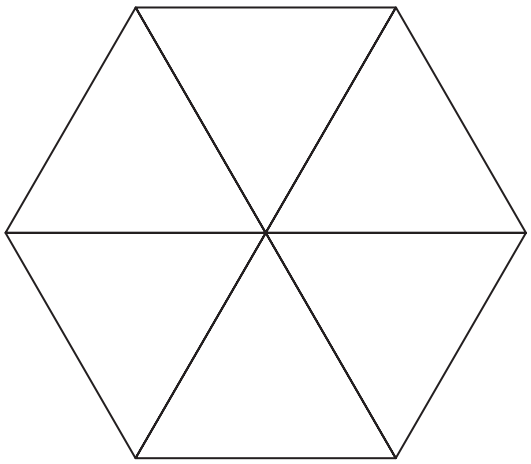
Write down the value of $\sqrt{6400}$

.....

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

11

12 A regular hexagon is made from 6 equilateral triangles as shown.
The perimeter of the hexagon is 54 centimetres.



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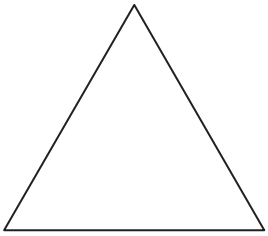


Work out the perimeter of one of the equilateral triangles.

.....

.....

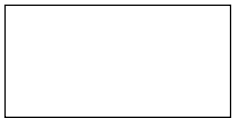
.....

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

13 A room is in the shape of a cuboid.
The diagrams show the plan view, front elevation and side elevation.

Plan view

Front elevation



Side elevation

Calculate the volume of the room.

.....

.....

.....

.....

Answer ..... m^3 *(3 marks)*

6

Turn over ▶

14 Here is a list of fractions.

$$\frac{17}{20} \qquad \frac{9}{25} \qquad \frac{85}{100} \qquad \frac{3}{5} \qquad \frac{25}{40}$$

Which **two** fractions in the list are equivalent?
You **must** show your working.

.....

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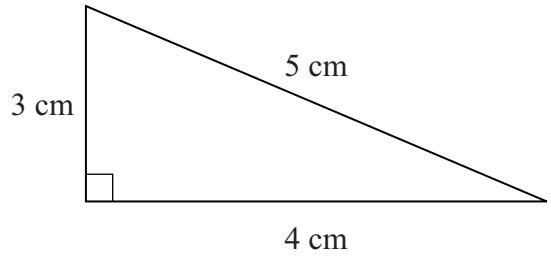
.....

.....

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

15 (a) The diagram shows a right-angled triangle.



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Work out the area of the triangle.
State the units of your answer.

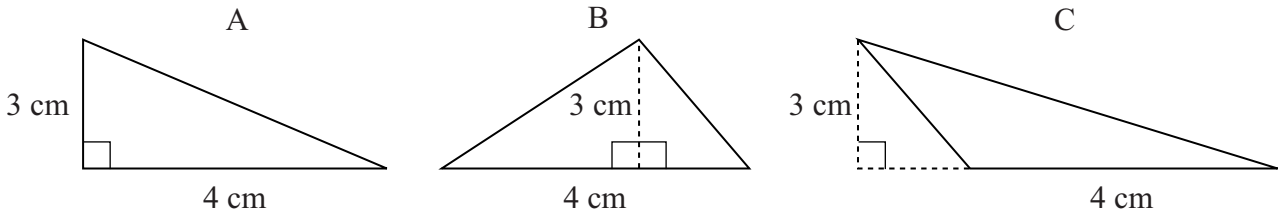
.....

.....

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

(b) Three triangles are shown, A, B and C.

Not drawn accurately



Here are four statements.

Statement 1	Triangle A has the greatest area.
Statement 2	Triangle B has the greatest area.
Statement 3	Triangle C has the greatest area.
Statement 4	All three triangles have the same area.

Which statement is correct?
Give a reason for your answer.

Statement .....

Reason .....

.....

(2 marks)

END OF QUESTIONS

8

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