

Centre No.						Paper Reference						Surname	Initial(s)	
Candidate No.						5	5	2	3	/	0	4	Signature	

Paper Reference(s)

5523/04

Edexcel GCSE

Mathematics A – 1387

Paper 4 (Calculator)

Intermediate Tier

Wednesday 15 June 2005 – Morning

Time: 2 hours

Examiner's use only

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Team Leader's use only

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Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Items included with question papers

Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.

Check that you have the correct question paper.

Answer **ALL** the questions in the spaces provided in this question paper.

You must NOT write on the formulae page. Anything you write on the formulae page will gain NO credit.

If you need more space to complete your answer to any question, use additional answer sheets.

Information for Candidates

There are 26 questions in this question paper. The total mark for this paper is 100.

The marks for individual questions and the parts of questions are shown in round brackets: e.g. (2).

Calculators may be used.

If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Advice to Candidates

Show all stages in any calculations.

Work steadily through the paper. Do not spend too long on one question.

If you cannot answer a question, leave it and attempt the next one.

Return at the end to those you have left out.

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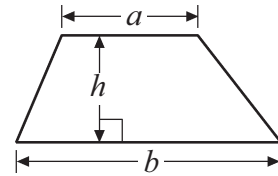
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GCSE Mathematics 1387/8

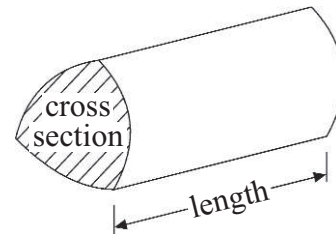
Formulae: Intermediate Tier

**You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit**

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



Volume of prism = area of cross section \times length



Answer ALL TWENTY SIX questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1. (a) Work out the value of $3.8^2 - \sqrt{75}$
Write down all the figures on your calculator display.

.....
(2)

- (b) Write your answer to part (a) correct to 1 significant figure.

.....
(1)

(Total 3 marks)

Q1

2. The length of a coach is 15 metres.

Jonathan makes a model of the coach.
He uses a scale of 1:24

Work out the length, in centimetres, of the model coach.



..... cm
(Total 2 marks)

Q2



3. Margaret goes on holiday to Switzerland.
The exchange rate is £1 = 2.10 francs.

She changes £450 into francs.

- (a) How many francs should she get?

..... francs
(2)

In Switzerland, Margaret buys a railway ticket.
The cost of the railway ticket is 63 francs.

- (b) Work out the cost of the ticket in pounds.

£.....
(2)

(Total 4 marks)

Q3

4. The table shows some expressions.

$2(y + y)$	$2y + y$	$2y \times 2y$	$2y + 2y$	$2 + 2y$

Two of the expressions **always** have the same value as $4y$.
Tick (✓) the boxes underneath the **two** expressions.

(Total 2 marks)

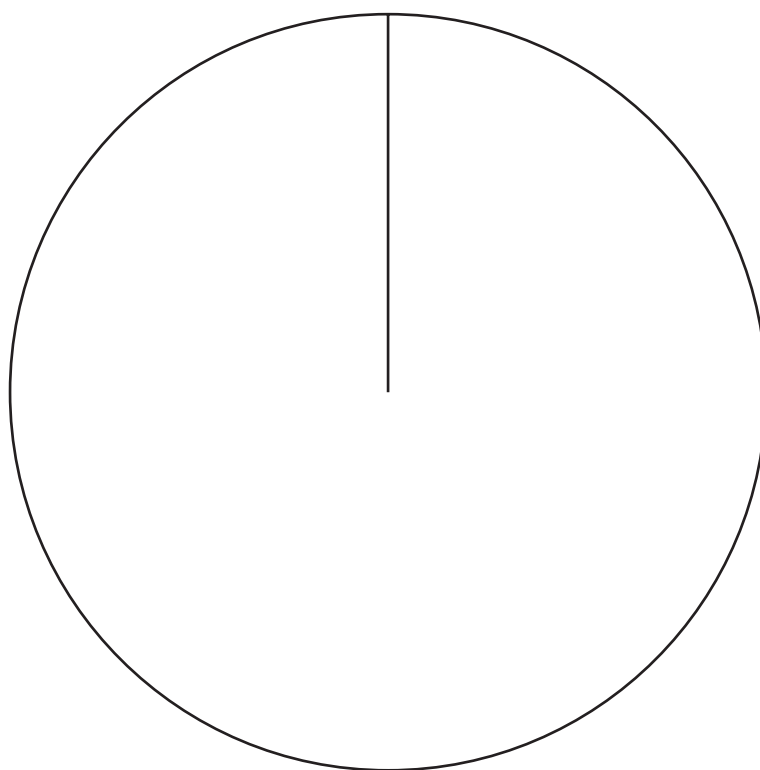
Q4



5. The table gives information about the medals won by Austria in the 2002 Winter Olympic Games.

Medal	Frequency	
Gold	3	
Silver	4	
Bronze	11	

Draw an accurate pie chart to show this information.

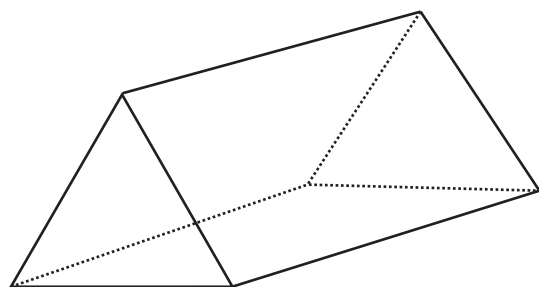


(Total 4 marks)

Q5



6.



The diagram shows a triangular prism.
The cross-section of the prism is an equilateral triangle.

(a) On the diagram, draw in **one** plane of symmetry for the triangular prism.

(2)

(b) In the space below, draw a sketch of a net for the triangular prism.

(2)



- (c) In the space below, use ruler and compasses to **construct** an equilateral triangle with sides of length 6 centimetres.
You must show all construction lines.
One side of the triangle has already been drawn for you.



(2)

(Total 6 marks)

Q6

7. Imran thinks of a number.

He multiplies the number by 3.
He then adds 19.

His answer is 61.

What number did Imran first think of?

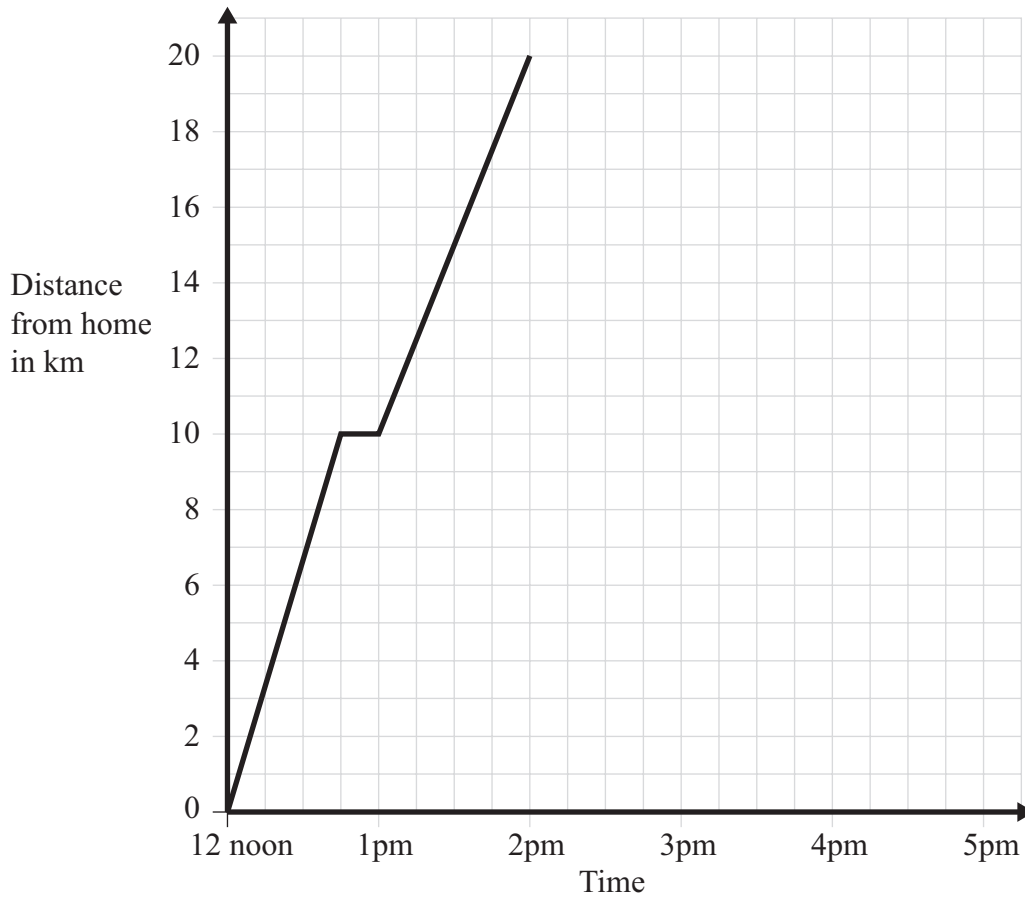
.....

(Total 2 marks)

Q7



8. A man left home at 12 noon to go for a cycle ride.
The travel graph represents part of the man's journey.



At 12.45pm the man stopped for a rest.

- (a) For how many minutes did he rest?

..... minutes
(1)

- (b) Find his distance from home at 1.30pm.

..... km
(1)

The man stopped for another rest at 2pm.

He rested for one hour.

Then he cycled home at a steady speed. It took him 2 hours.

- (c) Complete the travel graph.

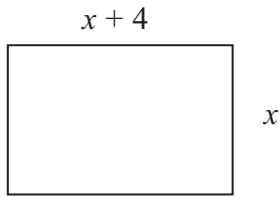
(2)

(Total 4 marks)

Q8



9. The width of a rectangle is x centimetres.
The length of the rectangle is $(x + 4)$ centimetres.



- (a) Find an expression, in terms of x , for the perimeter of the rectangle.
Give your expression in its simplest form.

.....
(2)

The perimeter of the rectangle is 54 centimetres.

- (b) Work out the length of the rectangle.

..... cm
(3)

(Total 5 marks)

Q9

10. Mr Brown chooses one book from the library each week.
He chooses a crime novel or a horror story or a non-fiction book.

The probability that he chooses a horror story is 0.4
The probability that he chooses a non-fiction book is 0.15

Work out the probability that Mr Brown chooses a crime novel.

.....
(Total 2 marks)

Q10



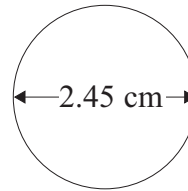
11. A 10 pence coin is made from copper and nickel.
The ratio of the weight of copper to the weight of nickel is 18:6

(a) Write the ratio 18:6 in its simplest form.

.....
(1)

The diameter of the 10 pence coin is 2.45 cm.

(b) Work out the circumference of the coin.
Give your answer correct to 1 decimal place.



..... cm
(2)

(Total 3 marks)

Q11



12. Change 7 m^2 to cm^2 .

..... cm^2
(Total 2 marks)

Q12

13. Michael buys 3 files.

The total cost of these 3 files is £5.40

Work out the total cost of 7 of these files.



£
(Total 3 marks)

Q13

14. Alistair sells books.

He sells each book for £7.60 plus VAT at $17\frac{1}{2}\%$.

He sells 1650 books.

Work out how much money Alistair receives.

£
(Total 4 marks)

Q14



15. James and Sam went on holiday by plane.
The pilot said the speed of the plane was 285 kilometres per hour.

James told Sam that 285 kilometres per hour was about the same as 80 metres per second.

Was James correct?
Show working to justify your answer.

Q15

(Total 3 marks)

16. (a) Solve $4(x + 3) = 6$

$x = \dots\dots\dots$
(3)

(b) Make t the subject of the formula $v = u + 5t$

$t = \dots\dots\dots$
(2)

Q16

(Total 5 marks)



17. The equation

$$x^3 - 4x = 24$$

has a solution between 3 and 4.

Use a trial and improvement method to find this solution.

Give your answer correct to 1 decimal place.

You must show **all** your working.

$x = \dots\dots\dots$

(Total 4 marks)

Q17



18. Three women earned a total of £36
They shared the £36 in the ratio 7:3:2

Donna received the largest amount.

(a) Work out the amount Donna received.

£.....
(3)

A year ago, Donna weighed 51.5 kg.
Donna now weighs $8\frac{1}{2}\%$ less.

(b) Work out how much Donna now weighs.
Give your answer to an appropriate degree of accuracy.

..... kg
(4)

(Total 7 marks)

Q18



19.

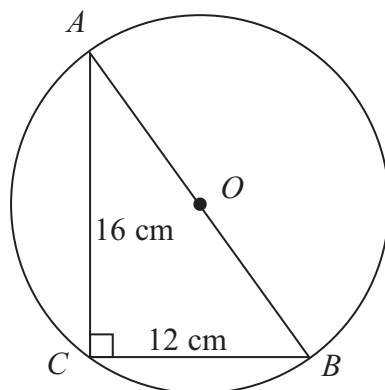


Diagram NOT accurately drawn

The diagram shows triangle ABC and a circle, centre O . A , B and C are points on the circumference of the circle. AB is a diameter of the circle.

$AC = 16$ cm and $BC = 12$ cm.

- (a) Angle $ACB = 90^\circ$.
Give a reason why.

..... (1)

- (b) Work out the diameter AB of the circle.

..... cm (3)

- (c) Work out the area of the circle.
Give your answer correct to 3 significant figures.

..... cm^2 (3)

(Total 7 marks)

Q19



20. The table shows information about the number of hours that 120 children used a computer last week.

Number of hours (h)	Frequency
$0 < h \leq 2$	10
$2 < h \leq 4$	15
$4 < h \leq 6$	30
$6 < h \leq 8$	35
$8 < h \leq 10$	25
$10 < h \leq 12$	5

(a) Work out an estimate for the mean number of hours that the children used a computer. Give your answer correct to 2 decimal places.

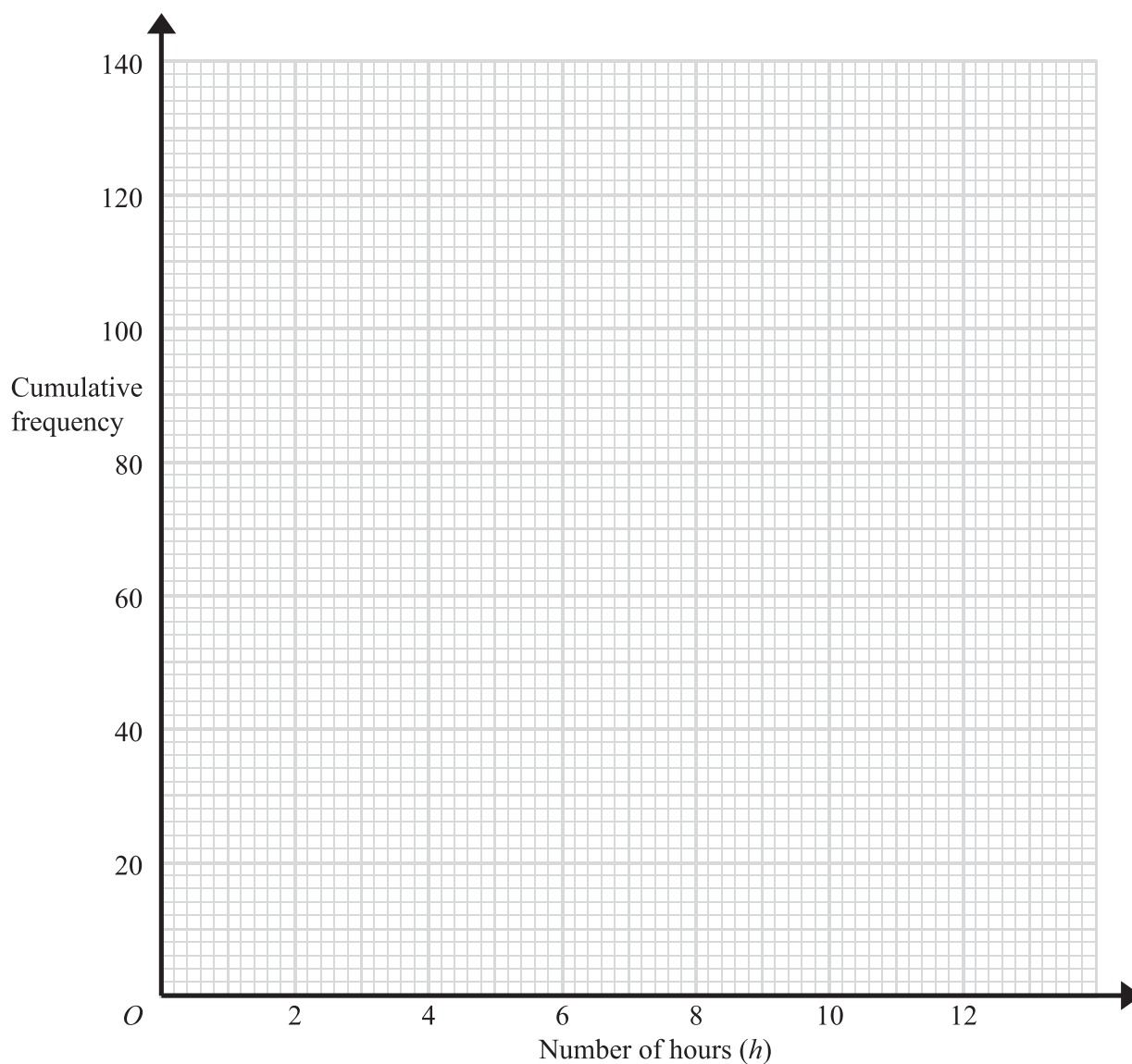
..... hours
(4)

(b) Complete the cumulative frequency table.

Number of hours (h)	Cumulative frequency
$0 < h \leq 2$	10
$0 < h \leq 4$	
$0 < h \leq 6$	
$0 < h \leq 8$	
$0 < h \leq 10$	
$0 < h \leq 12$	

(1)





(c) On the grid, draw a cumulative frequency graph for your table. (2)

(d) Use your graph to find an estimate for the number of children who used a computer for **less than 7 hours** last week.

.....
(2)

(Total 9 marks)

Q20



21. (a) Simplify $a^3 \times a^4$

.....
(1)

(b) Simplify $3x^2y \times 5xy^3$

.....
(2)

(c) Simplify $\frac{(x-1)^2}{x-1}$

.....
(1)

(d) Factorise $x^2 - 9$

.....
(1)

(Total 5 marks)

Q21

22. In a sale, normal prices are reduced by 20%.

Andrew bought a saddle for his horse in the sale.
The sale price of the saddle was £220

Calculate the normal price of the saddle.



£

(Total 3 marks)

Q22



23. Solve

$$\begin{aligned} x + 2y &= 4 \\ 3x - 4y &= 7 \end{aligned}$$

$x = \dots\dots\dots$

$y = \dots\dots\dots$

(Total 3 marks)

Q23

24. Work out $(3.2 \times 10^5) \times (4.5 \times 10^4)$

Give your answer in standard form correct to 2 significant figures.

$\dots\dots\dots$

(Total 2 marks)

Q24



25. A lighthouse, L , is 3.2 km due West of a port, P .
 A ship, S , is 1.9 km due North of the lighthouse, L .

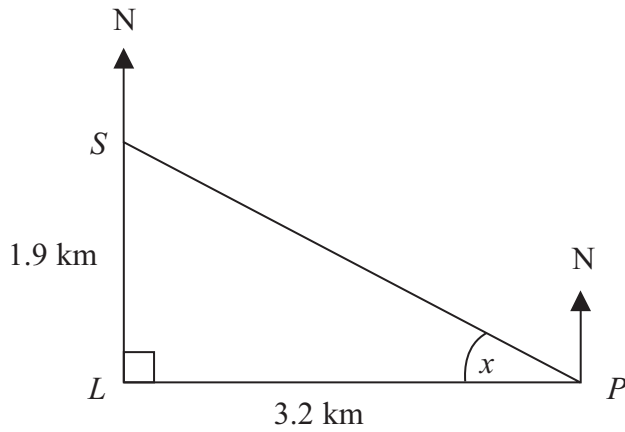


Diagram **NOT** accurately drawn

- (a) Calculate the size of the angle marked x .
 Give your answer correct to 3 significant figures.

$x = \dots\dots\dots^\circ$
(3)

- (b) Find the bearing of the port, P , from the ship, S .
 Give your answer correct to 3 significant figures.

$\dots\dots\dots^\circ$
(1)

(Total 4 marks)

Q25



26.

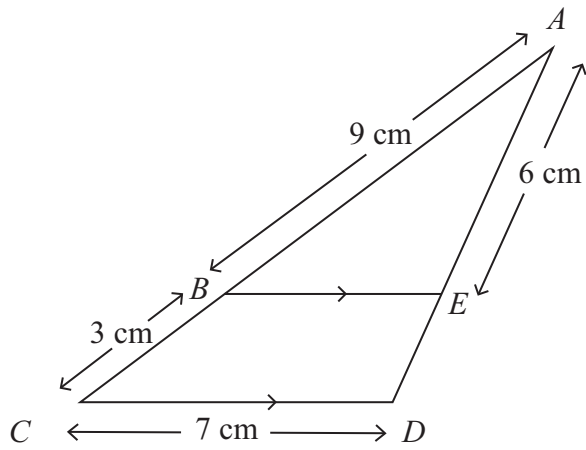


Diagram NOT accurately drawn

BE is parallel to CD .
 $AB = 9$ cm, $BC = 3$ cm, $CD = 7$ cm, $AE = 6$ cm.

Calculate the length of ED .

..... cm
 (Total 2 marks)

Q26

TOTAL FOR PAPER: 100 MARKS

END

