

Centre Number						Paper Reference	Surname	Other Names
Candidate Number							Candidate Signature	

1387

Edexcel GCSE

Mathematics A

Paper 4

INTERMEDIATE TIER

Specimen Paper

Time: 2 hours

N0000

For Examiner's
use only

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For Team Leader's
use only

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Materials required for the examination

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

Items included with these question papers

Formulae sheets.

Instructions to Candidates

In the boxes above, write your centre number, candidate number, the paper reference, your surname and other names and your signature. The paper reference is shown in the top left hand corner.

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

Supplementary answer sheets may be used

Information for Candidates

The total mark for this paper is 100.

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

Tracing paper may be used.

Calculators may be used.

This question paper has 22 questions. There is 1 blank page.

Advice to Candidates

Work steadily through the paper.

Do not spend too long on one question.

Show all stages in any calculations.

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

Return at the end to those you have left out.

N0000

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Answer ALL TWENTY ONE questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1. Janet goes on holiday to Spain.
The exchange rate is £1 = 230.6 pesetas.
She changes £250 into pesetas.

(a) How many pesetas should Janet get?

..... pesetas
(2)

Janet comes back home.
She changes 650 pesetas back into pounds.
The exchange rate is the same.

(b) How much money should she get?

£.....
(2)

(Total 4 marks)

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NA4

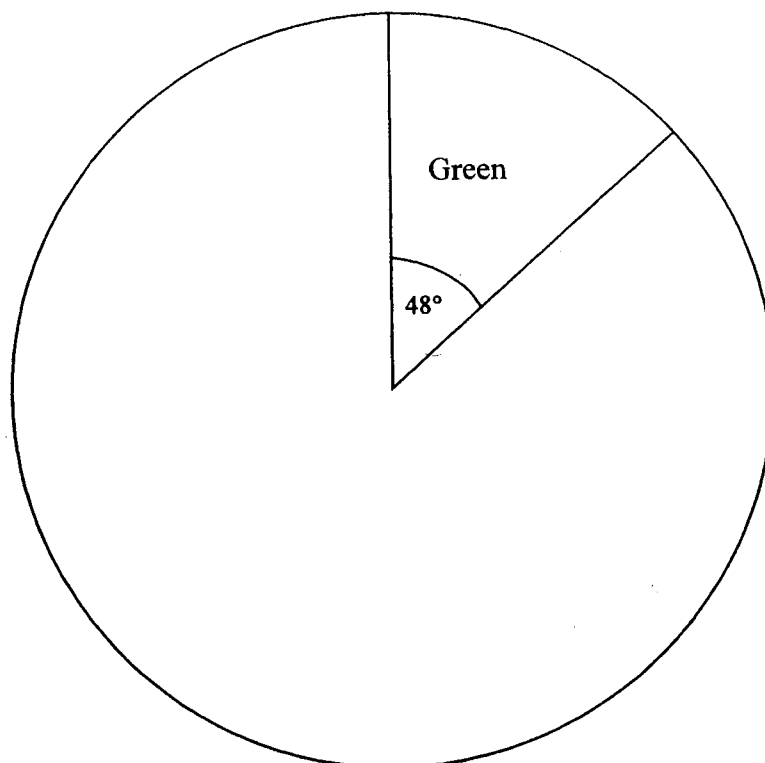
Gra
NA4

2. In a survey, the eye colours of the 540 students in a school were recorded.
The table shows the information

Eye colour	Number of students
Green	
Blue	123
Grey	
Brown	243
	540

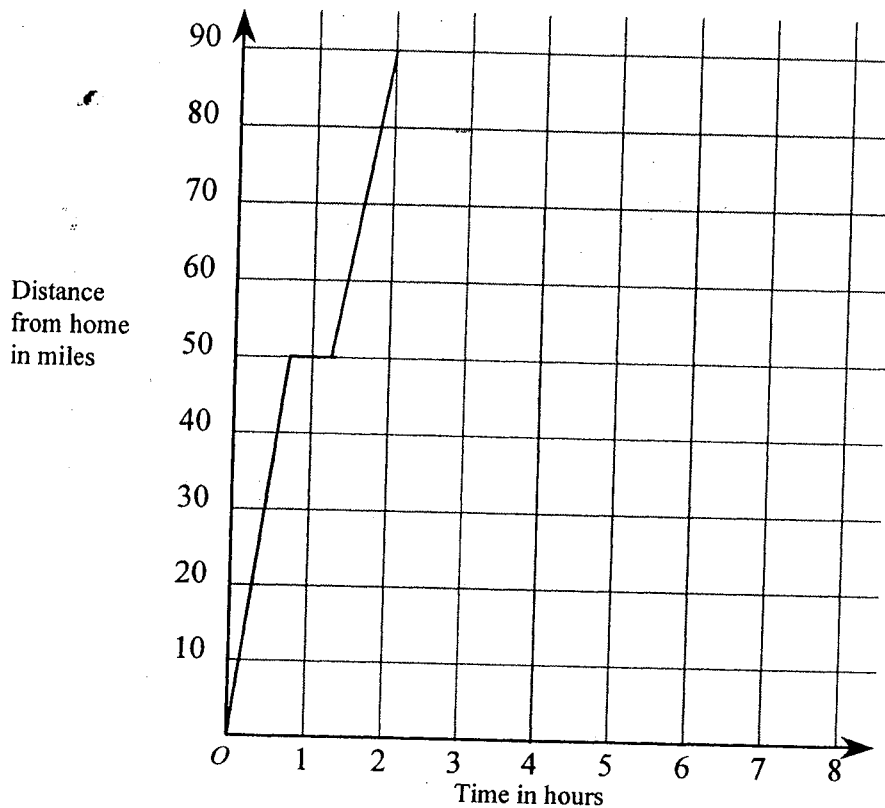
This information can be shown in a pie chart.
The pie chart below is incomplete.
Complete the pie chart.

Grade E
HD4a



(Total 3 marks)

3. Mark drives 90 miles to his friend's house.
This travel graph shows Mark's journey.



- (a) Explain what might have happened to Mark when he was 50 miles from home.

.....

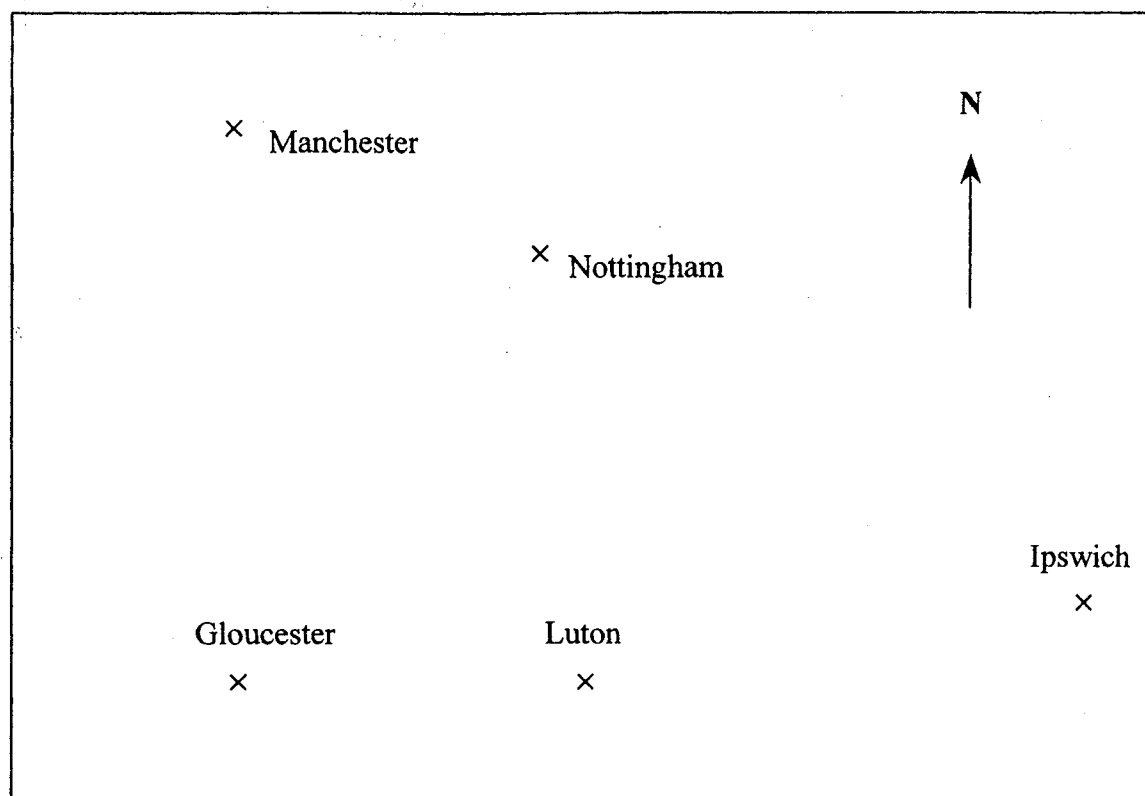
 (1)

Mark stays at his friend's house for an hour.
He then travels home at a steady speed in 3 hours.

- (b) Complete the graph to show this information.

(2)
 (Total 3 marks)

4.



The diagram is part of a map showing the positions of several towns.
Measure and write down the bearing of

(a) Nottingham from Gloucester,

Grade E
SSM4a

.....
(1)

(b) Ipswich from Nottingham,

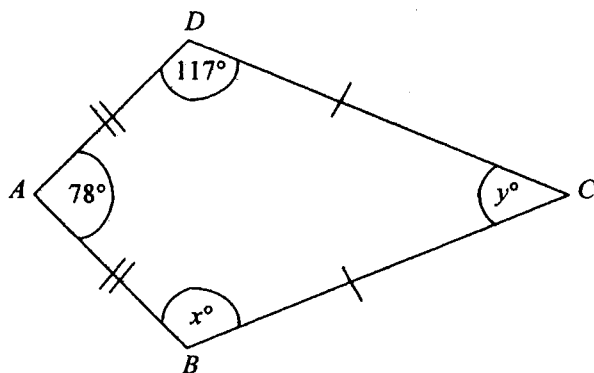
Grade E
SSM4a

.....
(1)

(Total 2 marks)

5.

Diagram NOT
accurately drawn.



The diagram shows a kite

- (a) (i) Write down the value of x .

$x = \dots\dots\dots$

- (ii) Give a reason for your answer.

$\dots\dots\dots$ (2)

- (b) (i) Work out the value of y .

$y = \dots\dots\dots$

- (ii) Give a reason for your answer.

$\dots\dots\dots$ (2)

(Total 4 marks)

6. Whilst doing a science experiment, Sam is told to use the equation

$$v = 9.81t - 5.27$$

to work out the values of v .

She uses her calculator to work out the value of v when $t = 6.23$.

- (a) Work out the correct value of v when $t = 6.23$.

NA3o
Grade E

.....
(1)

When $t = 7.28$, Sam worked out her answer for v to be 66.1468.

Sam's answer is correct.

Sam's friend Jo worked out v to be 19.7181 when $t = 7.28$.

- (b) Explain fully what is the most likely error made by Jo.

NA3o
Grade E

.....
.....
.....
(2)

(Total 3 marks)

7.

$$y = 2x + c$$

- (a) Work out the value of y when $x = -3$ and $c = 4$.

$$y = \dots\dots\dots (2)$$

- (b) Work out the value of c when $y = 10$ and $x = 3$.

$$c = \dots\dots\dots (2)$$

- (c) Solve

$$6p - 5 = 2p + 7$$

$$p = \dots\dots\dots (2)$$

- (d) Solve

$$5(q + 3) = 40$$

$$q = \dots\dots\dots (2)$$

- (e) Solve

$$7r + 3 = 3(r - 1)$$

$$r = \dots\dots\dots (2)$$

(Total 10 marks)

8. The table shows the engine size and the maximum speed of each of ten cars.

Engine Size (cc)	Maximum speed (mph)
1600	111
1800	121
2000	129
2500	130
2900	140
1400	105
1300	95
1100	89
1000	80
2700	136

The information for the first six cars has been plotted on the scatter graph opposite.

- (a) Complete the scatter graph opposite to show the information in the table.

Grade D
HD4a

(2)

- (b) Describe the relationship between a car's engine size and its maximum speed.

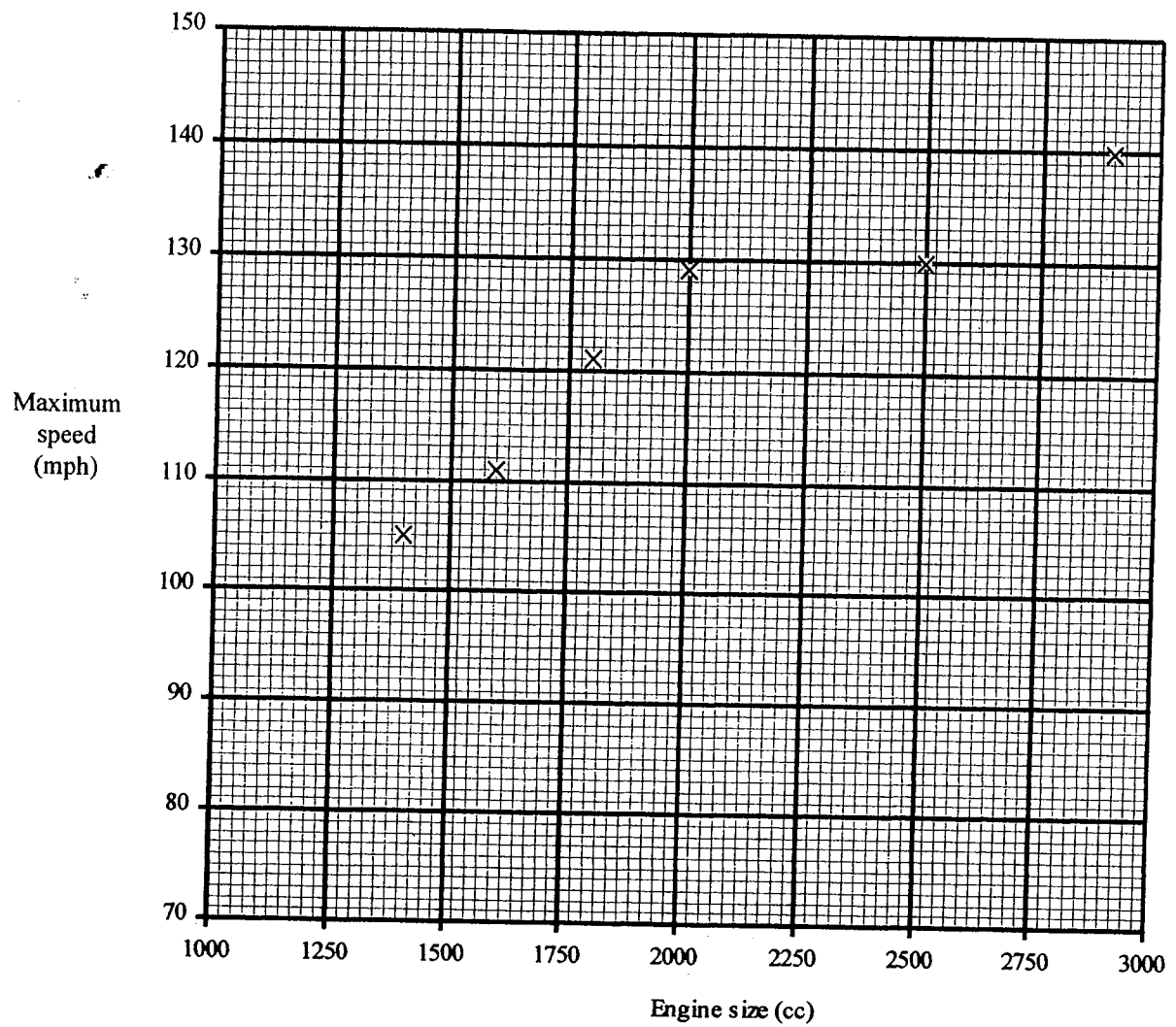
Grade D
HD5f

.....

.....

.....

(1)



(Total 3 marks)

9.

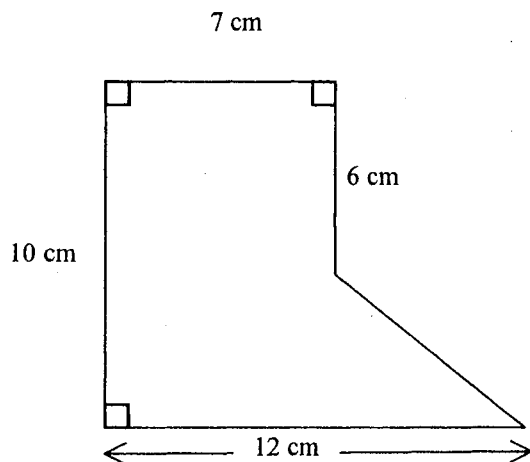


Diagram **NOT**
accurately drawn

The diagram shows a shape.

Work out the area of the shape.

Grade D
SSM4d

..... cm^2
(Total 5 marks)

10. Sam wants to buy a Hooper washing machine.
Hooper washing machines are sold in four different shops.

Washing Power

$\frac{1}{4}$ OFF
usual price
of £370

Whytes

15% OFF
usual price
of £370

Clean Up

£240
plus VAT
at $17\frac{1}{2}\%$

- (a) Find the difference between the maximum and minimum prices Sam could pay for a washing machine.

£

(7)

<p>Homeworld</p> <p>£293.75</p> <p>including VAT</p>
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The price of the washing machine in the Homeworld shop is £293.75.
This includes VAT at $17\frac{1}{2}\%$.

(b) Work out the cost of the washing machine **before** VAT is added.

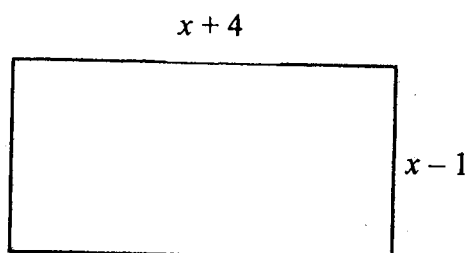
Grade B
NA3s

£

(3)

(Total 10 marks)

11.



The diagram shows a rectangle with length $x + 4$ and width $x - 1$.
All measurements are given in centimetres.

The perimeter of the rectangle is P centimetres.
The area of the rectangle is A square centimetres.

(a) Show that $A = x^2 + 3x - 4$.

The perimeter is 46 cm.

(b) Calculate the length of the diagonal of the rectangle.

..... cm

(5)
(Total 7 marks)

12. Circular fish ponds can be built to size.

The order form asks for the required diameter.

Ramana wants a circular fish pond with an area of 10 m^2 .

What diameter should she put on the order form?

SSM4h
Grade D

..... m
(Total 4 marks)

13. Calculate

$$\frac{3.87 \times 2.96^2 - 4.61 \cos 20^\circ}{\sqrt{7.83 + 0.593}}$$

NA3o
Grade C

.....
(Total 3 marks)

14. Wayne shares £360 between his children, Sharon and Liam, in the ratio of their ages. Sharon is 13 years old and Liam is 7 years old.

(a) Work out how much each child receives.

Sharon £

Liam £

(3)

(b) What percentage of the £360 does Sharon receive

.....%

(2)

(Total 5 marks)

15. n is an integer.

(a) Write down the values of n which satisfy the inequality

$$-2 < n \leq 3$$

(b) Solve the inequality

$$3x + 2 \leq 4$$

(2)

(2)
(Total 4 marks)

16. (a) Expand

$$x(3x^2 + 4)$$

Grade C
NA5d

.....
(2)

(b) Simplify

$$2x^2y^3 \times 5x^3y$$

Grade B
NA5b

.....
(2)

(c) Factorise completely

$$ax + ay - by - bx$$

Grade B
NA5b

.....
(2)

(Total 6 marks)

17.

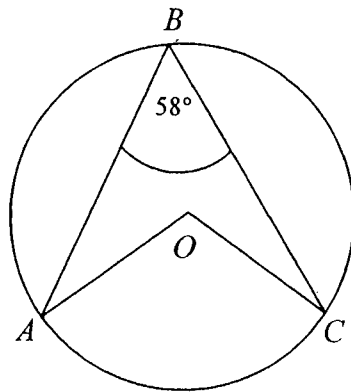


Diagram **NOT**
accurately drawn

A , B and C are points on the circumference of a circle, with centre O .

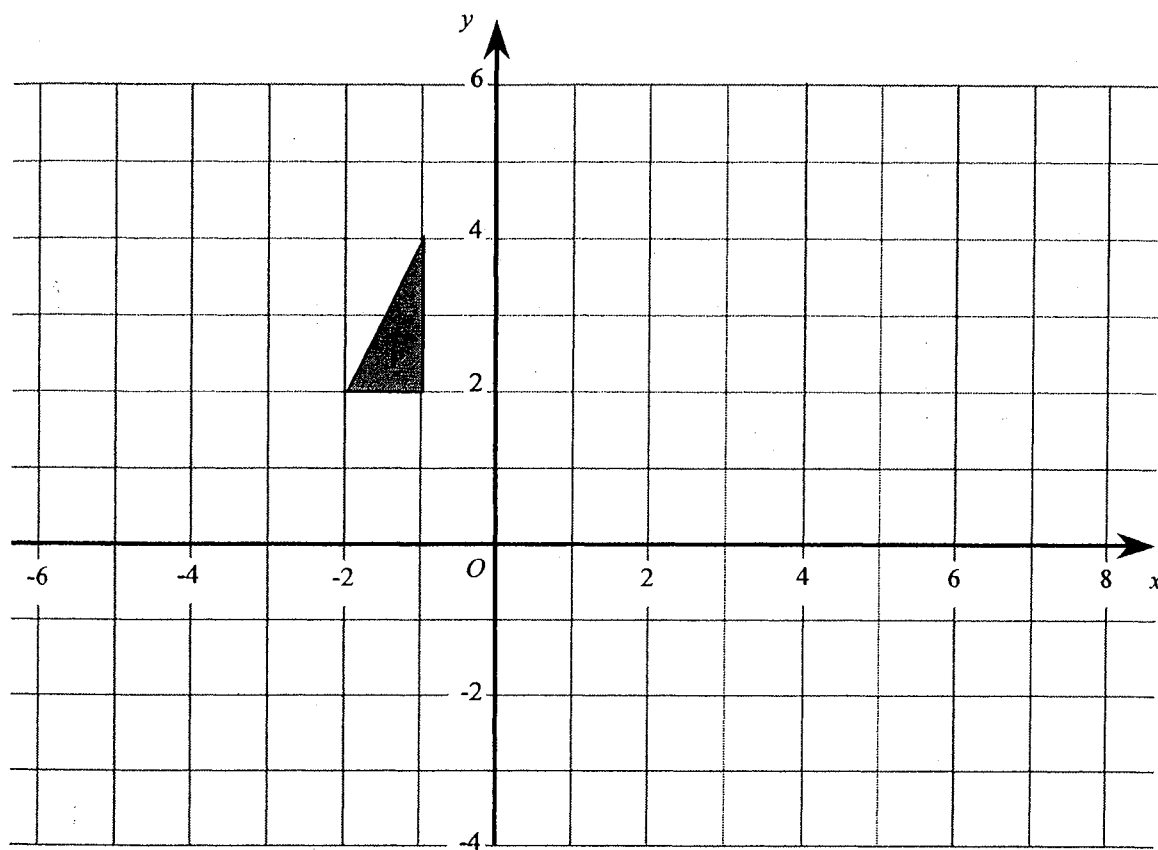
(i) Find angle AOC .

(ii) Give a reason for your answer.

(Total 2 marks)

Gr
SS

18.



The triangle **P** has been drawn on the grid.

- (a) Reflect the triangle **P** in the line $x = 2$.
Label the image **Q**.
- (b) Rotate triangle **Q** through 180° about $(2, 1)$.
Label this image **R**.

(2)

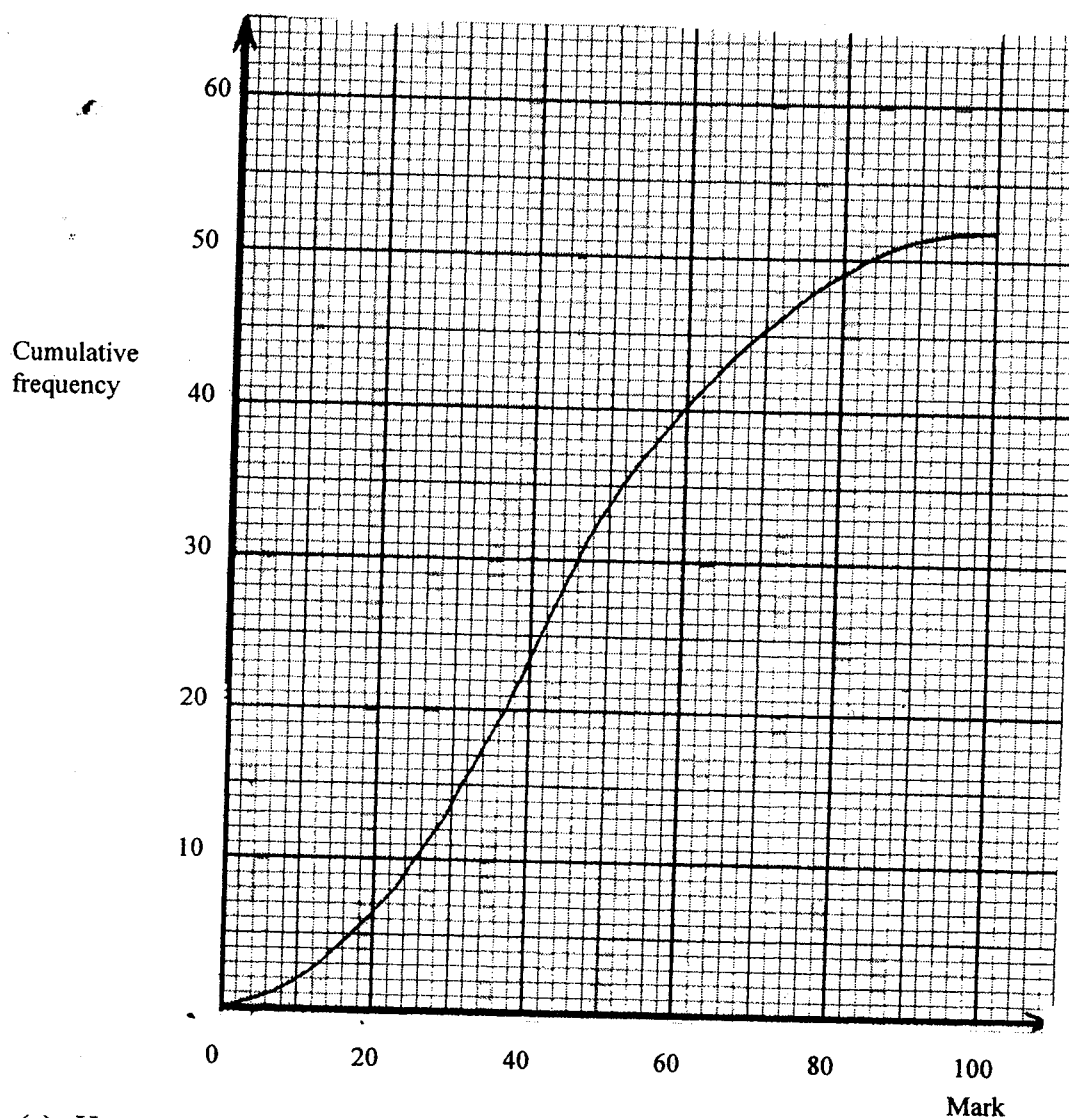
Grade C
SSM3b

(2)

Grade C
SSM3b

(Total 4 marks)

19. The cumulative frequency graph gives information about the examination marks of a group of students.



- (a) How many students were in the group?

Grade
HD5c

(1)

- (b) Use the graph to estimate the median mark.

Grade
HD5d

(1)

The pass mark for the examination was 56.

- (c) Use the graph to estimate the number of students who passed the examination.

Grade
HD5d

(2)

(Total 4 marks)

20. The Andromeda Galaxy is 21 900 000 000 000 000 000 km from the Earth.

(a) Write 21 900 000 000 000 000 000 in standard form.

Grade B
NA3h

.....

(1)

Light travels 9.46×10^{12} km in one year.

(b) Calculate the number of years that light takes to travel from the Andromeda Galaxy to Earth.

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

Grade B
NA3m

.....

(2)

(Total 3 marks)

21. Solve the simultaneous equations

$$3x + 4y = 5$$

$$5x - 2y = 17$$

Grade B
NA5i

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots$$

(Total 3 marks)

22.

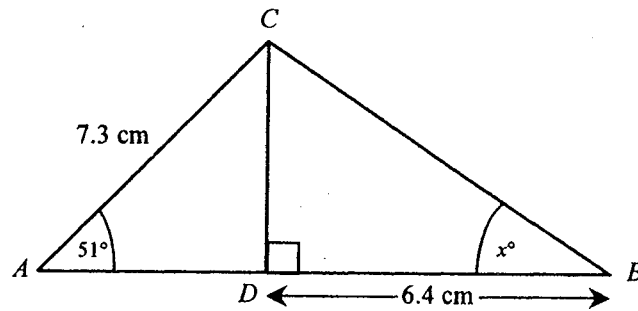


Diagram NOT
accurately
drawn

The diagram shows a triangle ABC .
The line CD is perpendicular to the line AB .
 $AC = 7.3$ cm, $BD = 6.4$ cm and angle $BAC = 51^\circ$.

Calculate the size of the angle marked x° .
Give your answer correct to 1 decimal place.

Gra
SSN

.....
(Total 5 marks)

23. Tony carries out a survey about the words in a book.

He chooses a page at random.

He then counts the number of letters in each of the first hundred words on the page.

The table shows Tony's results.

Number of letters in a word	1	2	3	4	5	6	7	8
Frequency	6	9	31	24	16	9	4	1

The book has 25000 words.

Estimate the number of 5 letter words in the book.

HD4b
Grade C

.....
(Total 3 marks)

TOTAL FOR PAPER: 100 MARKS