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

Paper Reference(s)

5523/03

Examiner's use only

Team Leader's use only

Edexcel GCSE

Mathematics A – 1387

Paper 3 (Non-Calculator)

Intermediate Tier

Monday 4 June 2007 – Afternoon

Time: 2 hours

Materials required for examination
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
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. Write your answers 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

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
There are 27 questions in this question paper. The total mark for this paper is 100.
There are 24 pages in this question paper. Any blank pages are indicated.
Calculators must not be used.

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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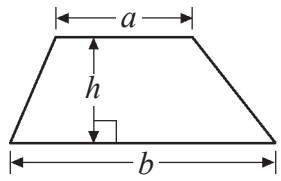
GCSE Mathematics 1387/8

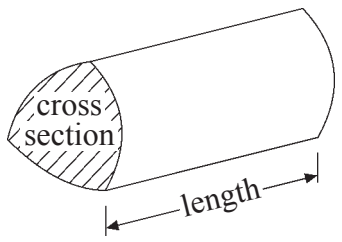
Formulae: Intermediate Tier

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 × length



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Answer ALL TWENTY SEVEN questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

You must NOT use a calculator.

1.

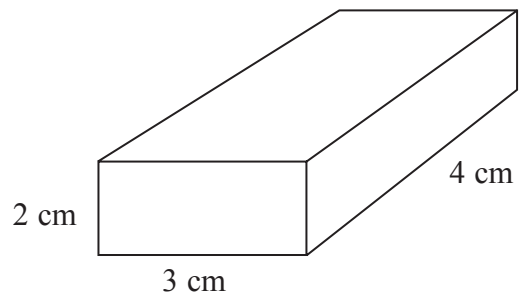


Diagram **NOT** accurately drawn

The diagram shows a solid cuboid.
On the isometric grid, make an accurate full size drawing of the cuboid.

Q1

(Total 2 marks)

Leave blank

2. Kavic wants to collect some information about the different makes of cars in a car park.

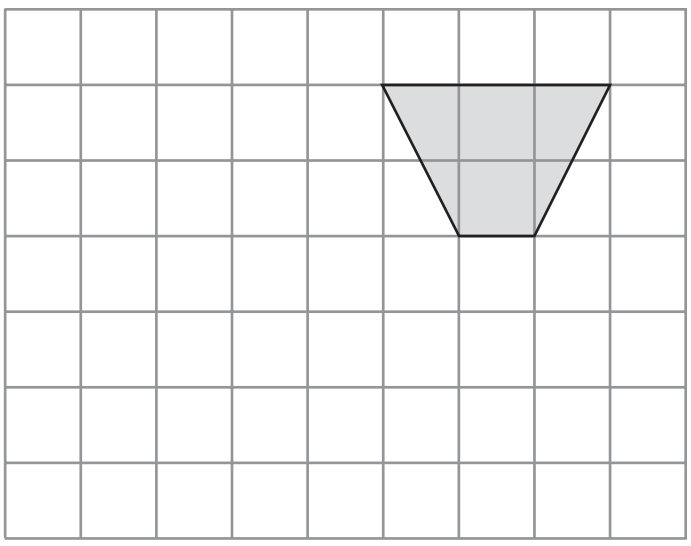
Design a suitable data collection sheet that Kavic could use to collect this information.

Q2

(Total 3 marks)

3. On the grid, show how this shape tessellates.

You should draw at least 6 shapes.



Q3

(Total 2 marks)

Leave blank

4.

Young Person's RAILCARD

$\frac{1}{3}$ off normal price

Lisa uses her railcard to buy a ticket.

She gets $\frac{1}{3}$ off the normal price of the ticket.

The normal price of the ticket is £24.90

Work out how much Lisa pays for the ticket.

£ .....

(Total 3 marks)

Q4

Leave blank

5. Work out 3.15×24

.....

Q5

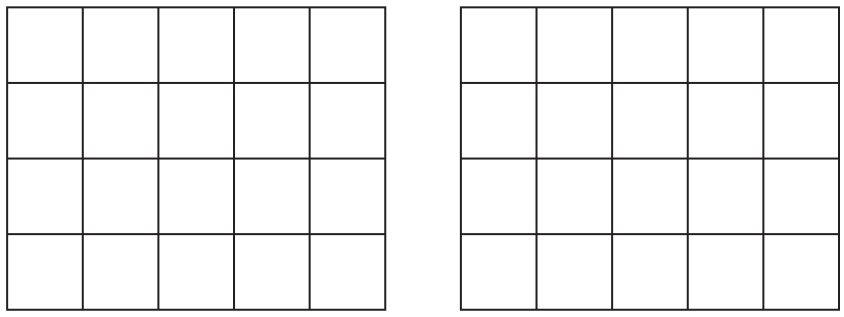
(Total 3 marks)

6. Here are two fractions $\frac{3}{4}$ and $\frac{4}{5}$

Which is the larger fraction?

You must show your working to explain your answer.

You may use the grids to help with your explanation.



..... is the larger fraction

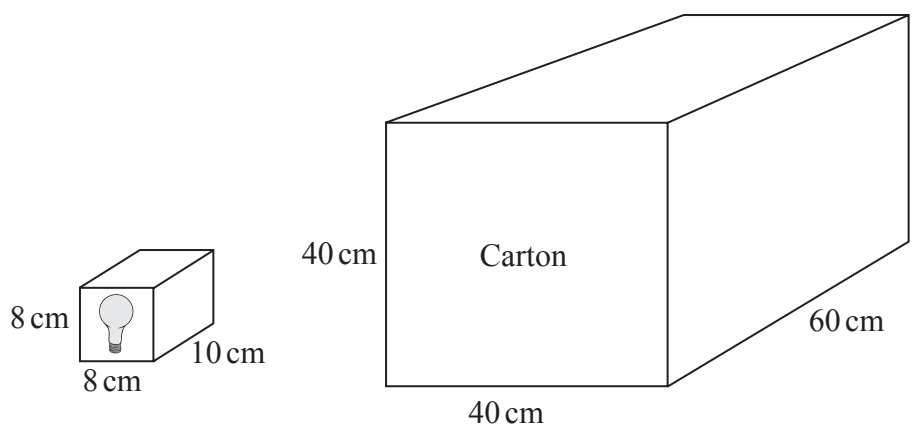
Q6

(Total 3 marks)

Leave blank

7.

Diagrams **NOT** accurately drawn



A light bulb box measures 8 cm by 8 cm by 10 cm.
Light bulb boxes are packed into cartons.
A carton measures 40 cm by 40 cm by 60 cm.

Work out the number of light bulb boxes which can completely fill **one** carton.

.....

(Total 4 marks)

Q7

Turn over

Leave blank

8. Emily has a bag of 20 fruit flavour sweets.

7 of the sweets are strawberry flavour,
11 are lime flavour,
2 are lemon flavour.

Emily takes at random a sweet from the bag.

Write down the probability that Emily

(a) takes a strawberry flavour sweet,

.....
(1)

(b) does **not** take a lime flavour sweet,

.....
(1)

(c) takes an orange flavour sweet.

.....
(1) **Q8**

(Total 3 marks)

9. A cup of tea costs 80 pence.

(a) Write down an expression, in terms of x, for the cost, in pence, of x cups of tea.

..... pence
(1)

A cup of coffee costs 95 pence.

(b) Write down an expression, in terms of y, for the cost, in pence, of y cups of coffee.

..... pence
(1)

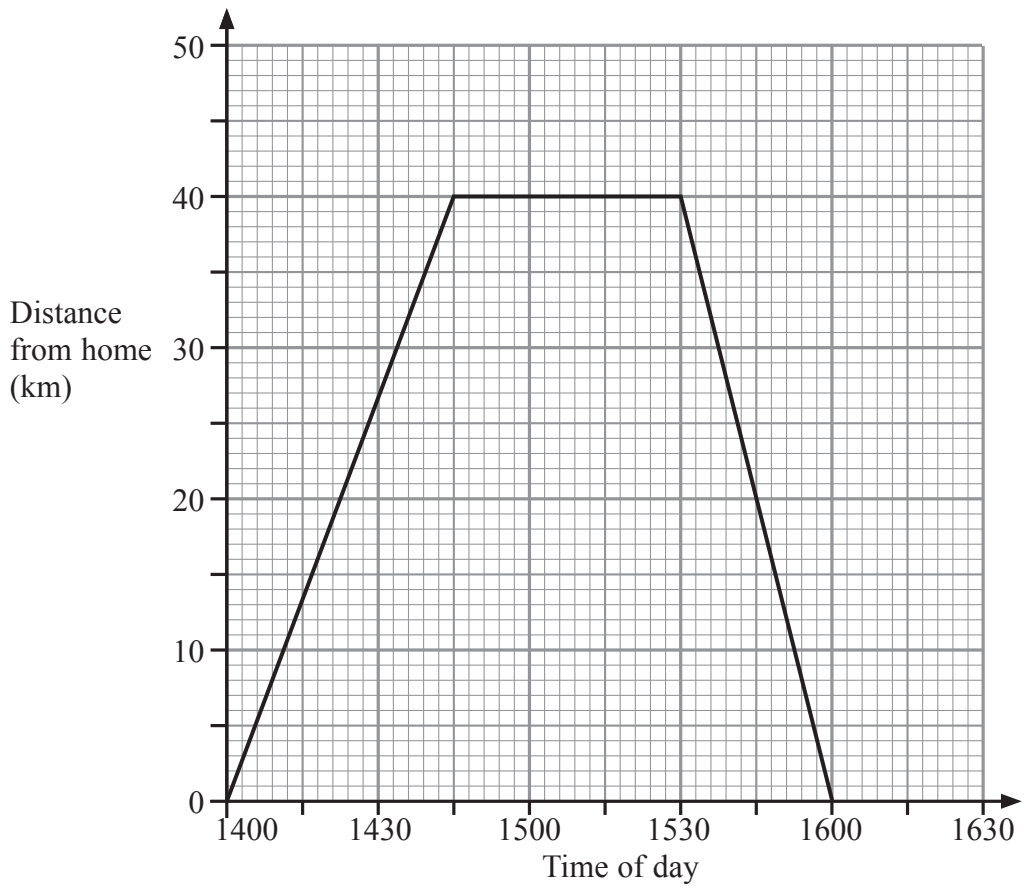
(c) Write down an expression, in terms of x and y, for the total cost, in pence, of x cups of tea and y cups of coffee.

..... pence
(2) **Q9**

(Total 4 marks)

Leave blank

10. Judy drove from her home to the airport.
She waited at the airport.
Then she drove home.
Here is the distance-time graph for Judy's complete journey.



(a) What is the distance from Judy's home to the airport?

..... km
(1)

(b) For how many minutes did Judy wait at the airport?

..... minutes
(1)

(c) Work out Judy's average speed on her journey home from the airport.
Give your answer in kilometres per hour.

..... kilometres per hour
(2)

Q10

(Total 4 marks)

Leave blank

11. (a) Work out the value of $3x - 4y$ when $x = 3$ and $y = 2$

.....

(2)

(b) Work out the value of $\frac{p(q-3)}{4}$ when $p = 2$ and $q = -7$

.....

(3) **Q11**

(Total 5 marks)

Leave blank

12. Janine recorded the times, in seconds, for each of 15 people to do a puzzle.
Here are her results.

90	81	78	83	68
75	79	81	69	87
76	91	67	73	81

(a) Complete the ordered stem and leaf diagram and key to show these results.

6	
7	
8	
9	

Key

(3)

Janine says "To find the median time, you add all the results and divide by 15"

Janine is **wrong**.

(b) (i) Explain how to find the median.

.....

.....

.....

(ii) Find the median.

..... s

(2)

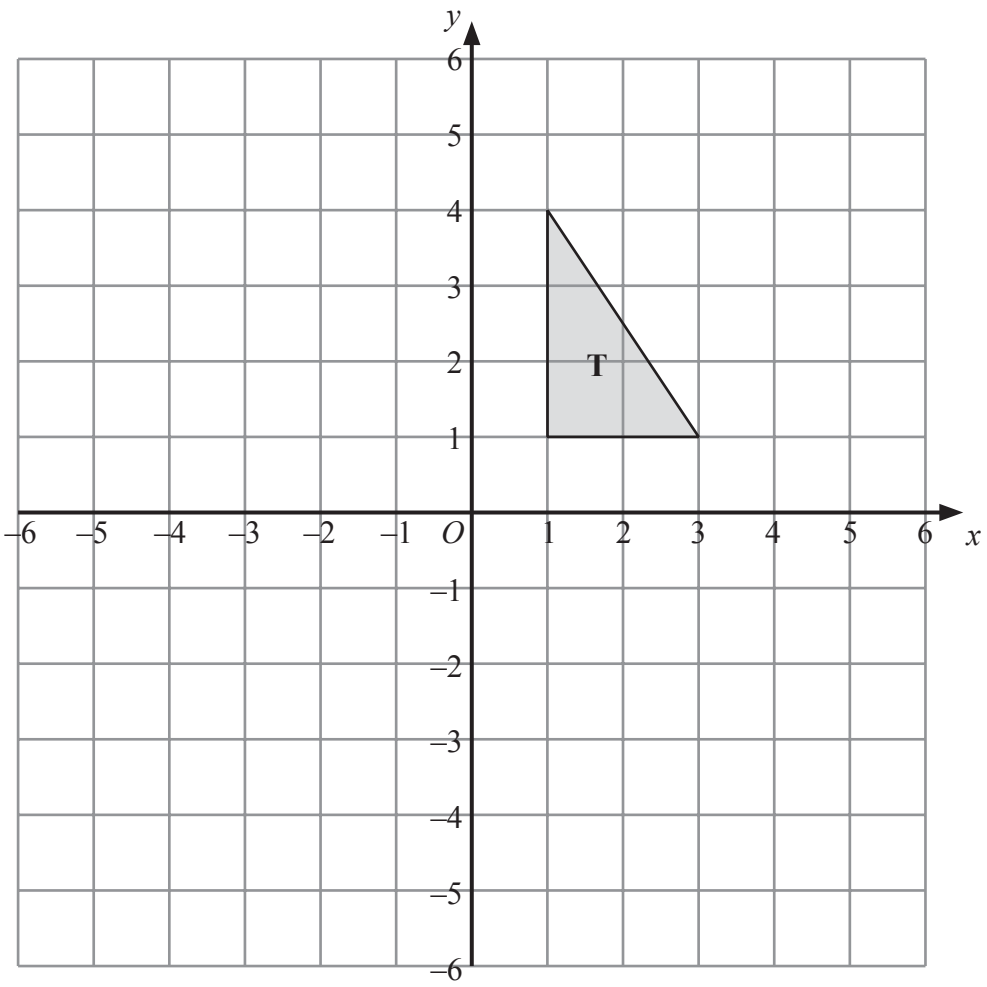
(Total 5 marks)

Q12

Turn over

Leave blank

13.



Triangle **T** has been drawn on the grid.

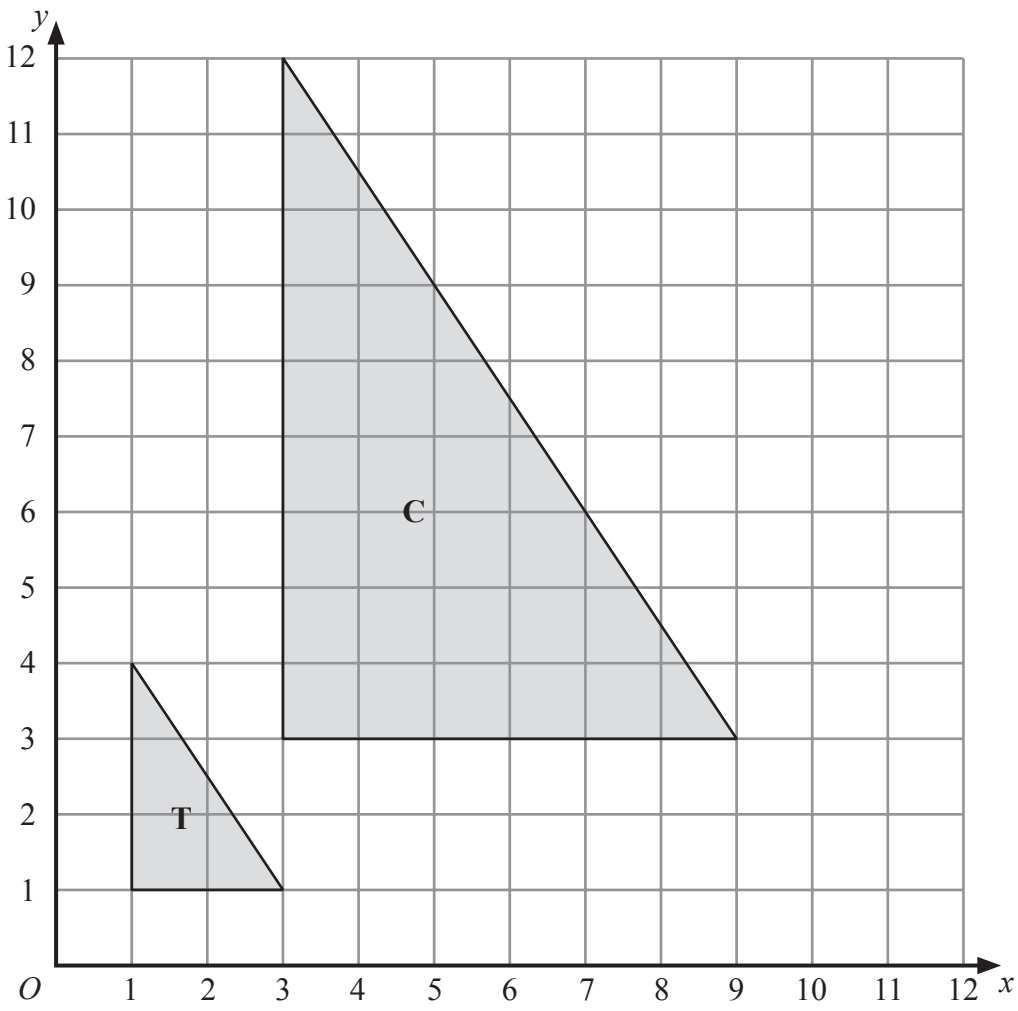
(a) Reflect triangle **T** in the *y*-axis.
Label the new triangle **A**.

(1)

(b) Rotate triangle **T** by a half turn, centre *O*.
Label the new triangle **B**.

(2)

Leave blank



(c) Describe fully the single transformation which maps triangle **T** onto triangle **C**.

.....

.....

(3) **Q13**

(Total 6 marks)

Turn over

Leave blank

14. Using the information that

$$19 \times 24 = 456$$

write down the value of

(a) 19×240

.....
(1)

(b) 19×2.4

.....
(1)

(c) $456 \div 190$

.....
(1) **Q14**

(Total 3 marks)

15. (a) Simplify fully $4a + 5b - 2a + b$

.....
(2)

(b) Factorise $x^2 - 6x$

.....
(2)

(c) Expand $x(3 - 2x^2)$

.....
(2)

(d) Factorise completely $12xy + 4x^2$

.....
(2) **Q15**

(Total 8 marks)

Leave blank

16. A bag contains counters which are red or green or yellow or blue.

The table shows each of the probabilities that a counter taken at random from the bag will be red or green or blue.

Colour	**Red**	**Green**	**Yellow**	**Blue**
Probability	0.2	0.3		0.1

A counter is to be taken at random from the bag.

(a) Work out the probability that the counter will be yellow.

.....

(2)

The bag contains 200 counters.

(b) Work out the number of red counters in the bag.

.....

(2) **Q16**

(Total 4 marks)

Leave blank

17.

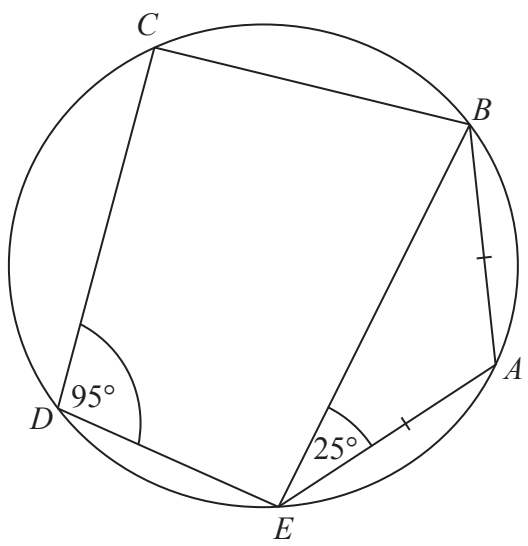


Diagram **NOT** accurately drawn

A, *B*, *C*, *D* and *E* are five points on a circle.
Angle *BEA* = 25° and angle *CDE* = 95°.
AB = *AE*.

(a) (i) Work out the size of angle *BAE*.

.....°

(ii) Give reasons for your answer.

.....

.....

.....

(3)

(b) Work out the size of angle *CBE*.

.....°

(1)

(Total 4 marks)

Q17

Leave blank

18. (a) Write as a power of 7

(i) $7^8 \div 7^3$

.....

(ii) $\dfrac{7^2 \times 7^3}{7}$

.....

(3)

(b) Write down the reciprocal of 2

.....

(1) **Q18**

(Total 4 marks)

19. (a) Write 30 000 000 in standard form.

.....

(1)

(b) Write 2×10^{-3} as an ordinary number.

.....

(1) **Q19**

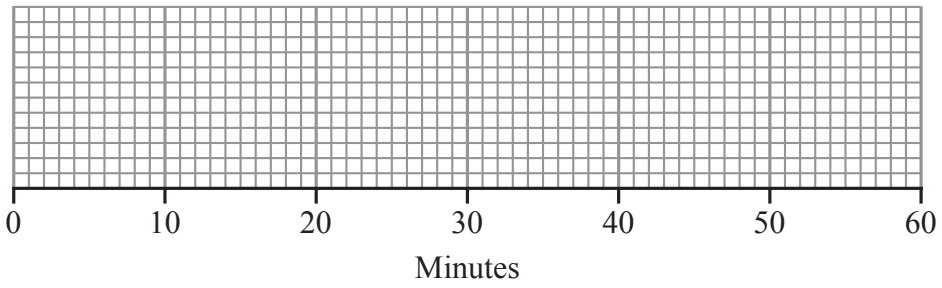
(Total 2 marks)

Leave blank

20. Mrs Raja set work for the students in her class.
She recorded the time taken, in minutes, for each student to do the work.
She used her results to work out the information in the table.

	Minutes
Shortest time	4
Lower quartile	14
Median	26
Upper quartile	30
Longest time	57

On the grid, draw a box plot to show the information in the table.



(Total 2 marks)

Q20

21. (a) Write 126 as a product of its prime factors.

.....

(2)

(b) Find the Highest Common Factor (HCF) of 84 and 126

.....

(2)

Q21

(Total 4 marks)

Leave blank

22. Work out $2\frac{2}{3} \times 1\frac{1}{4}$

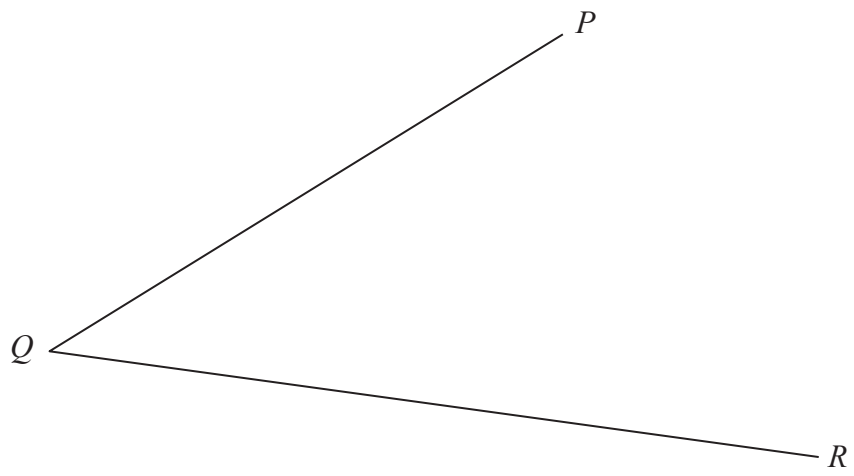
Give your answer in its simplest form.

.....

(Total 3 marks)

Q22

23.



Use ruler and compasses to **construct** the bisector of angle *PQR*.
You must show all your construction lines.

(Total 2 marks)

Q23

Leave blank

24. (a) m is an integer such that $-1 \leqslant m < 4$
List all the possible values of m.

.....
(2)

(b) (i) Solve the inequality $3x \geqslant x + 7$

.....

(ii) x is a whole number.
Write down the smallest value of x that satisfies $3x \geqslant x + 7$

.....
(3)

Q24

(Total 5 marks)

25. Solve the simultaneous equations

$$4x + 2y = 8$$
$$2x - 5y = 10$$

Q25

$x =$ ..... , $y =$ .....
(Total 3 marks)

Leave blank

26.

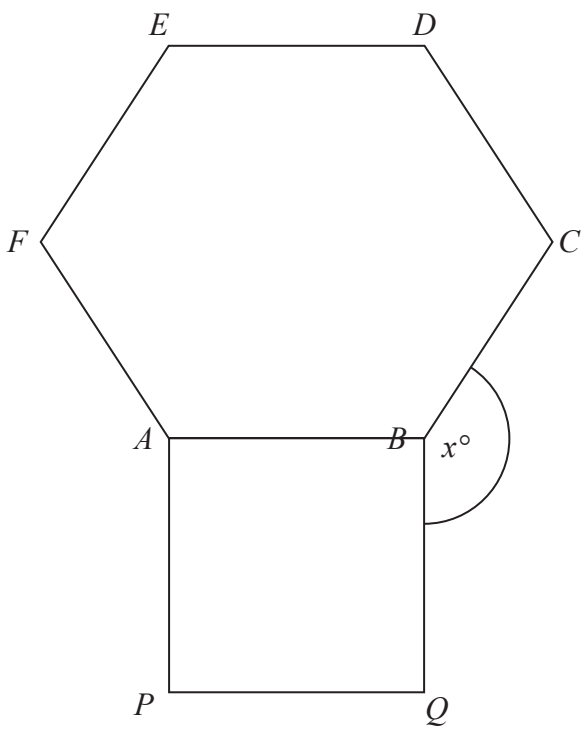


Diagram **NOT** accurately drawn

ABCDEF is a regular hexagon and *ABQP* is a square.
Angle *CBQ* = *x*°.

Work out the value of *x*.

x = ...

Q26

(Total 4 marks)

Turn over

Leave blank

27. An operator took 100 calls at a call centre.
The table gives information about the time (t seconds) it took the operator to answer each call.

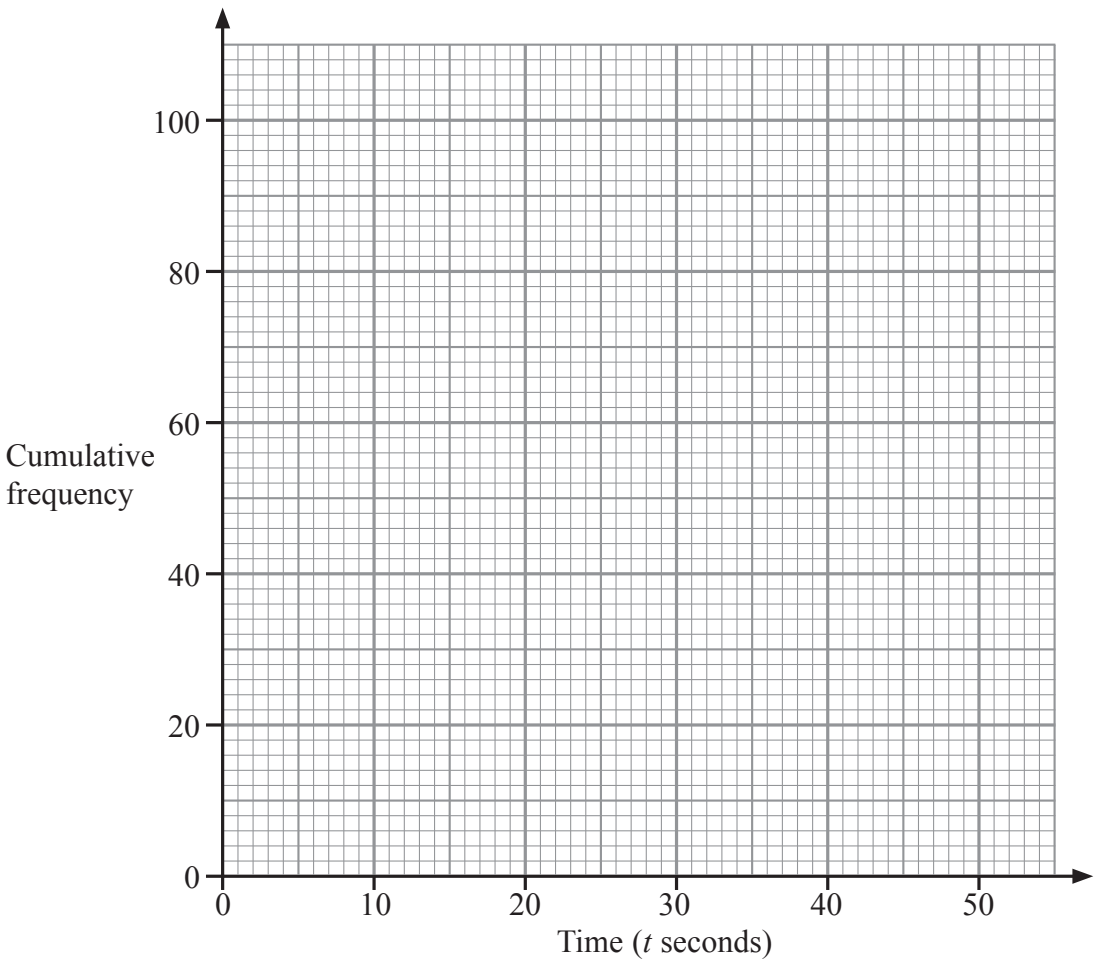
Time (t seconds)	Frequency
$0 < t \leqslant 10$	16
$10 < t \leqslant 20$	34
$20 < t \leqslant 30$	32
$30 < t \leqslant 40$	14
$40 < t \leqslant 50$	4

(a) Complete the cumulative frequency table.

Time (t seconds)	Cumulative frequency
$0 < t \leqslant 10$	16
$0 < t \leqslant 20$	
$0 < t \leqslant 30$	
$0 < t \leqslant 40$	
$0 < t \leqslant 50$	

(1)

Leave blank



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

(2)

(c) Use your graph to find an estimate for the number of calls the operator took **more** than 18 seconds to answer.

.....

(2) **Q27**

(Total 5 marks)

TOTAL FOR PAPER: 100 MARKS

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