

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

Paper Reference(s)

**5523/03**

**Edexcel GCSE**

**Mathematics A – 1387**

Paper 3 (Non-Calculator)

**Intermediate Tier**



Monday 4 June 2007 – Afternoon

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.  
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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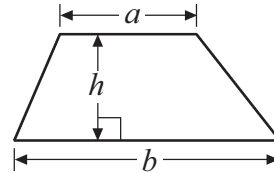
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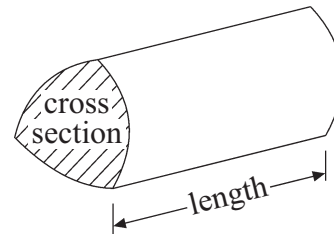
Formulae: Intermediate Tier

**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 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.

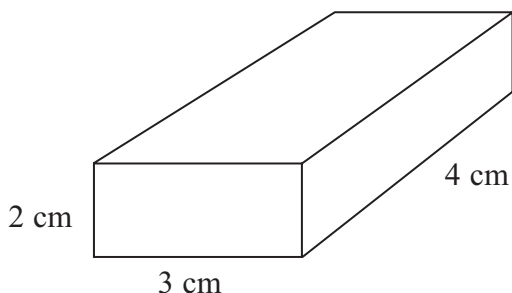
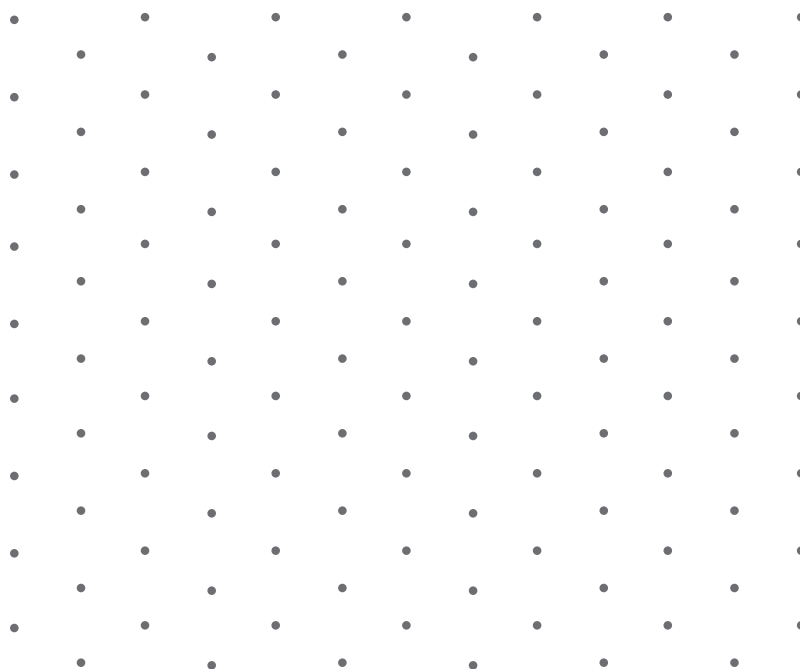


Diagram NOT accurately drawn

The diagram shows a solid cuboid.

On the isometric grid, make an accurate full size drawing of the cuboid.



(Total 2 marks)

Q1

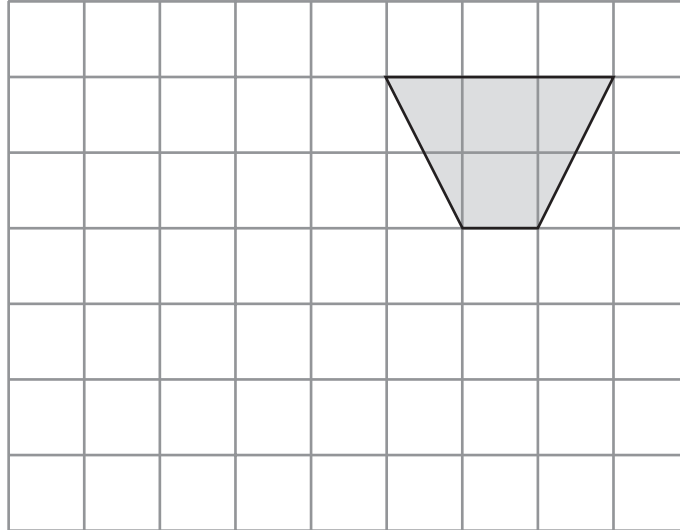


2. Kavic wants to collect some information about the different makes of cars in a car park.  
Design a suitable data collection sheet that Kavic could use to collect this information.

(Total 3 marks)

Q2

3. On the grid, show how this shape tessellates.  
You should draw at least 6 shapes.



(Total 2 marks)

Q3



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



5. Work out  $3.15 \times 24$

.....

**(Total 3 marks)**

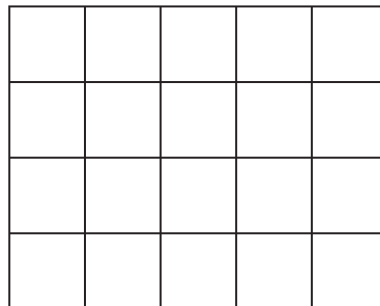
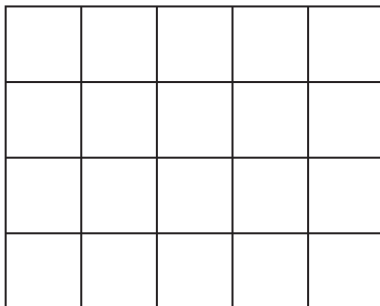
**Q5**

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

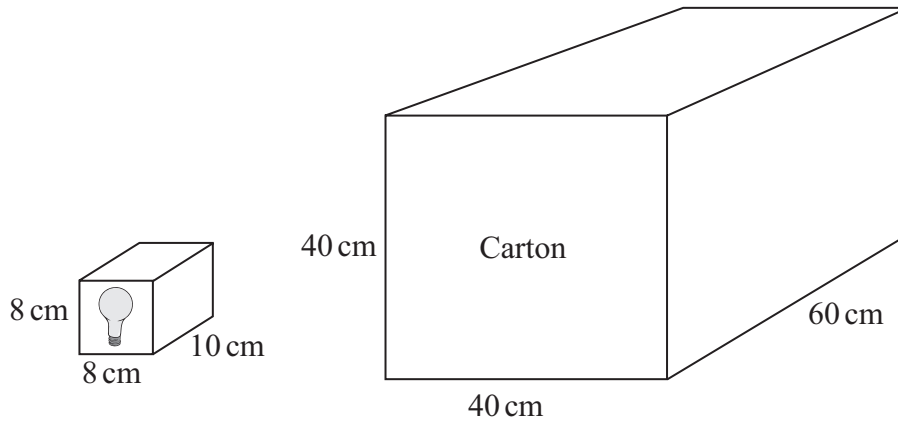
**(Total 3 marks)**

**Q6**



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



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)

**(Total 3 marks)**

Q8

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)

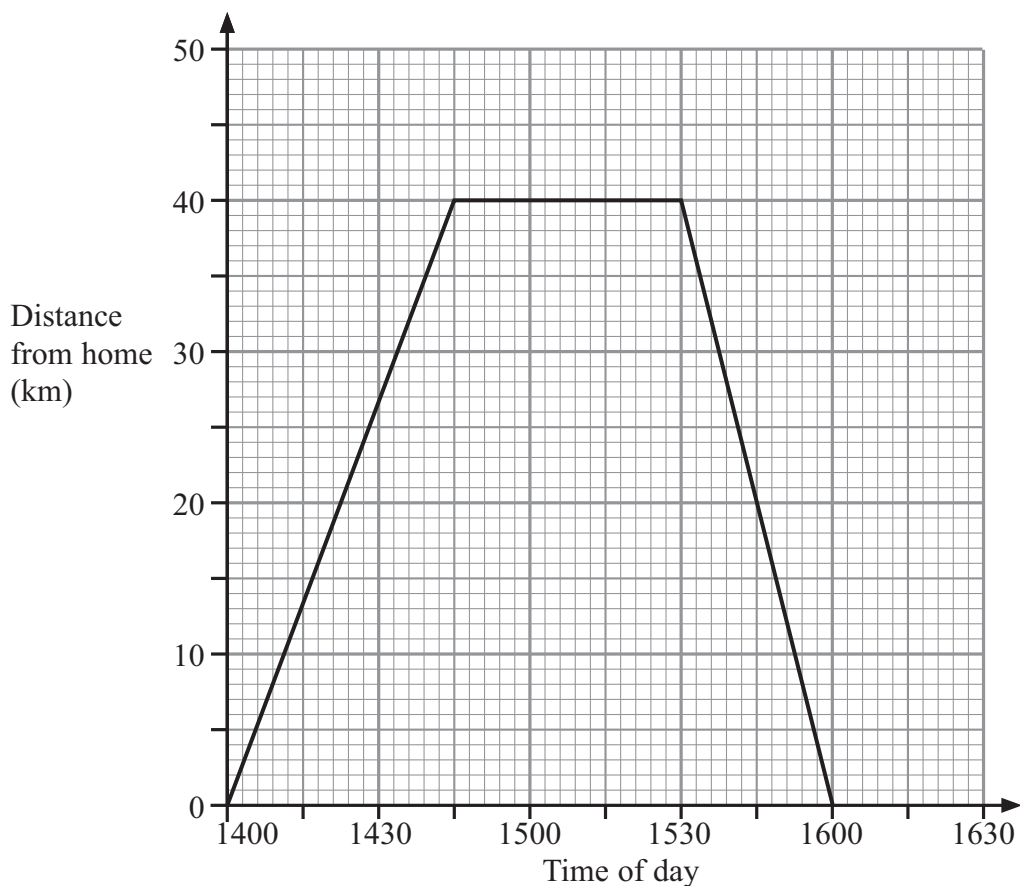
**(Total 4 marks)**

Q9





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)**

**(Total 4 marks)**

**Q10**



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)**

**(Total 5 marks)**

Q11



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.

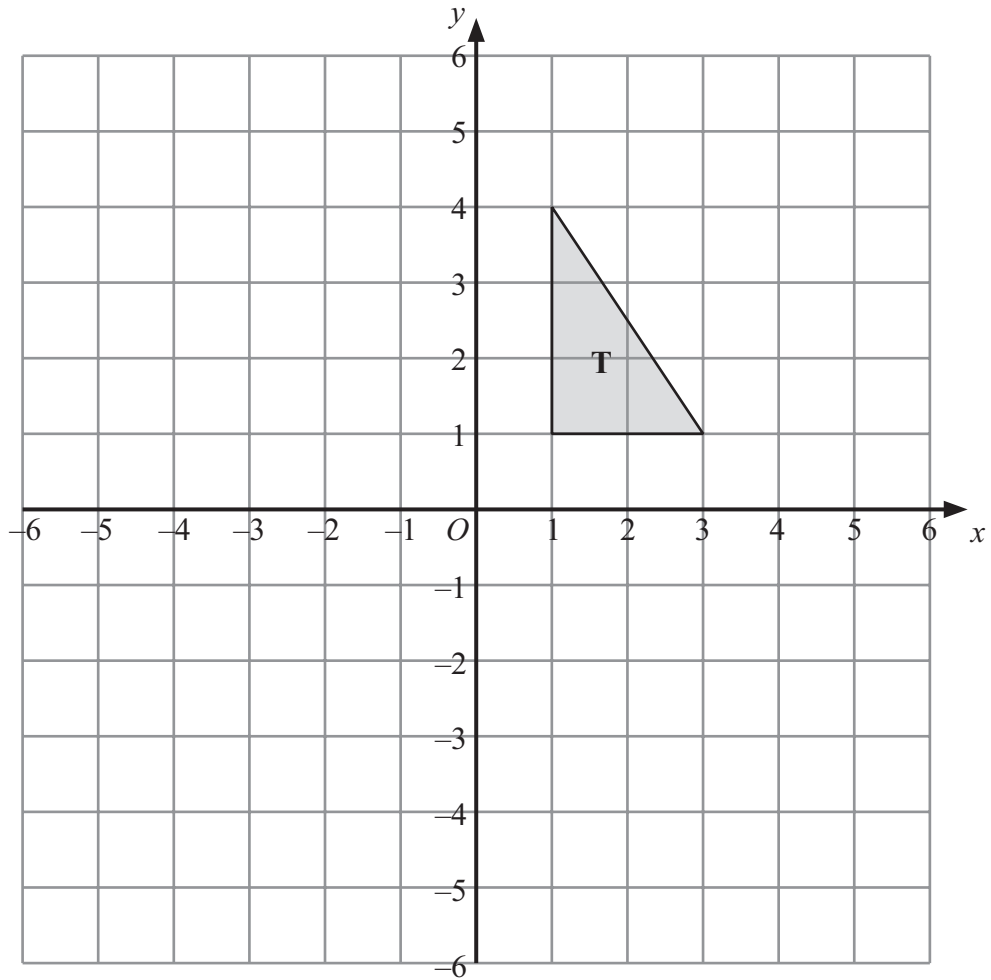
..... S  
 (2)

(Total 5 marks)

Q12



13.



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

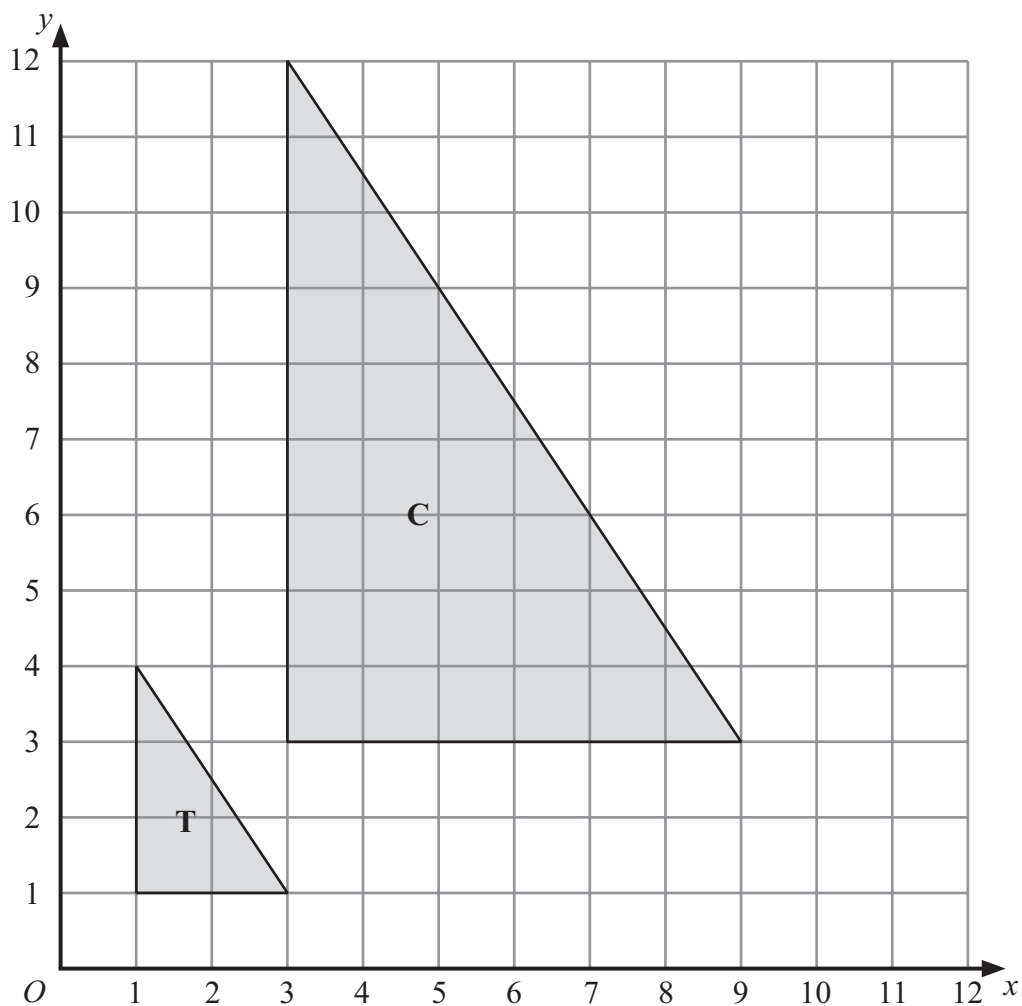
- (a) Reflect triangle **T** in the  $y$ -axis.  
Label the new triangle **A**.

(1)

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

(2)





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

.....  
 .....

(3) Q13

(Total 6 marks)



14. Using the information that

$$19 \times 24 = 456$$

write down the value of

(a)  $19 \times 240$

.....  
(1)

(b)  $19 \times 2.4$

.....  
(1)

(c)  $456 \div 190$

.....  
(1)

**(Total 3 marks)**

**Q14**

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)

**(Total 8 marks)**

**Q15**



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)

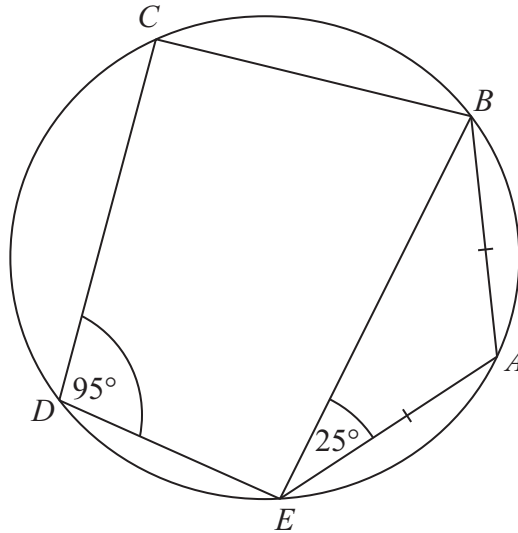
**(Total 4 marks)**

Q16



17.

Diagram **NOT** accurately drawn



$A, B, C, D$  and  $E$  are five points on a circle.  
 Angle  $BEA = 25^\circ$  and angle  $CDE = 95^\circ$ .  
 $AB = AE$ .

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

.....<sup>o</sup>

(ii) Give reasons for your answer.

.....  
 .....  
 .....

**(3)**

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

.....<sup>o</sup>

**(1)**

**(Total 4 marks)**

**Q17**





18. (a) Write as a power of 7

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

.....

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

.....  
(3)

(b) Write down the reciprocal of 2

.....  
(1)

(Total 4 marks)

Q18

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

.....  
(1)

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

.....  
(1)

(Total 2 marks)

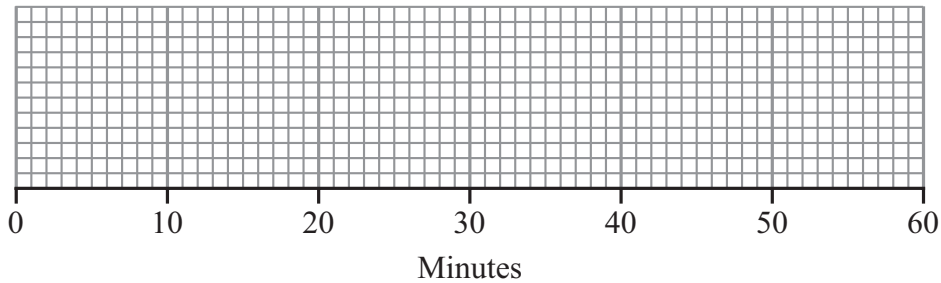
Q19



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.



Q20

(Total 2 marks)

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

.....  
(2)

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

.....  
(2)

(Total 4 marks)

Q21



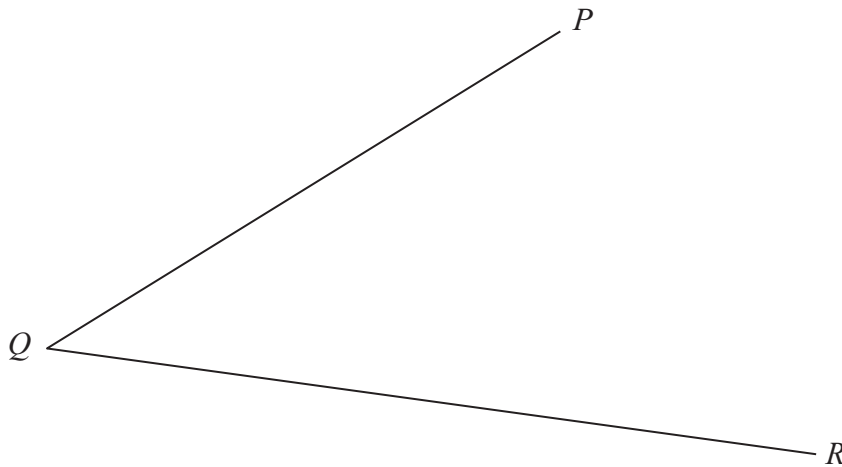
22. Work out  $2\frac{2}{3} \times 1\frac{1}{4}$

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



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

.....  
(2)

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

.....

(ii)  $x$  is a whole number.

Write down the smallest value of  $x$  that satisfies  $3x \geq x + 7$

.....  
(3)

(Total 5 marks)

Q24

25. Solve the simultaneous equations

$$4x + 2y = 8$$

$$2x - 5y = 10$$

$x = \dots\dots\dots$ ,  $y = \dots\dots\dots$

(Total 3 marks)

Q25



26.

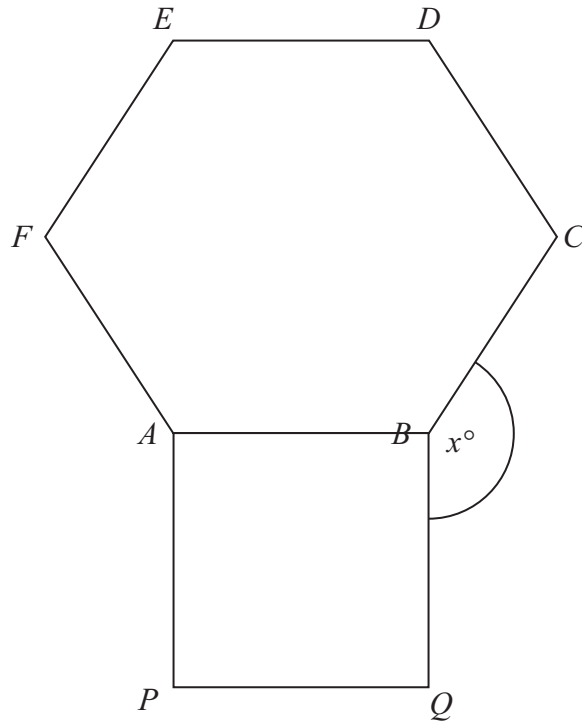


Diagram **NOT** accurately drawn

$ABCDEF$  is a regular hexagon and  $ABQP$  is a square.  
 Angle  $CBQ = x^\circ$ .

Work out the value of  $x$ .

$x = \dots\dots\dots$

(Total 4 marks)

Q26



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.

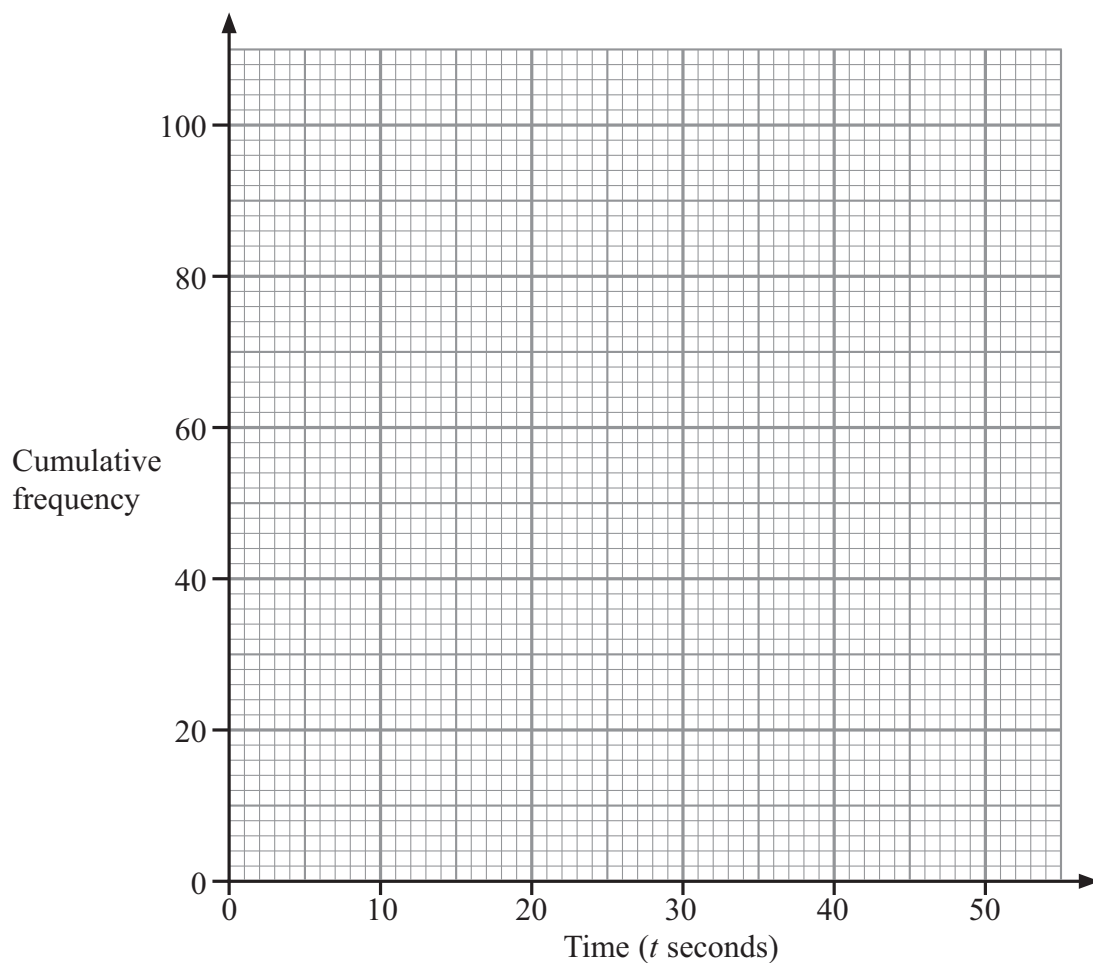
Time ( $t$ seconds)	Frequency
$0 < t \leq 10$	16
$10 < t \leq 20$	34
$20 < t \leq 30$	32
$30 < t \leq 40$	14
$40 < t \leq 50$	4

- (a) Complete the cumulative frequency table.

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

(1)





- (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)

(Total 5 marks)

Q27

**TOTAL FOR PAPER: 100 MARKS**

**END**

