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

Paper Reference(s)

5503/03

Edexcel GCSE

Mathematics A – 1387

Paper 3 (Non – Calculator)

Intermediate Tier

Tuesday 8 June 2004 – Afternoon

Time: 2 hours

Examiner's use only

Team Leader's use only

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 in the spaces provided in this question paper.
You must NOT write on the formulae page or any blank pages. Anything you write on these pages will gain NO credit.
If you need more space to complete your answer to any question, use additional answer sheets.

Information for Candidates

The total mark for this paper is 100. This paper has 25 questions. There is one blank page.
The marks for individual questions and parts of questions are shown in round brackets: e.g. **(2)**.
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.

Printer's Log. No.
N17248A
W850/R1387/57570 6/6/6/6/6/6/3/

N 1 7 2 4 8 A

Turn over

Edexcel
Success through qualifications

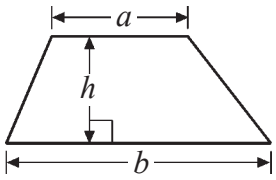
Leave blank

GCSE Mathematics 1387/8

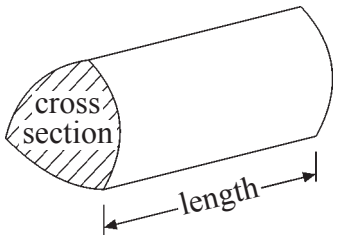
Intermediate Tier Formulae

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

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



Volume of prism = area of cross section × length



Leave blank

Answer ALL TWENTY FIVE questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

You must NOT use a calculator.

1. The diagram shows a rectangular carpet.

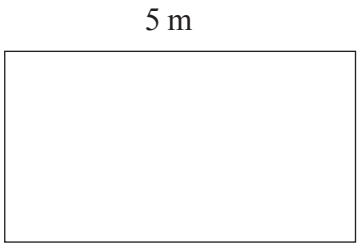


Diagram **NOT** accurately drawn

Work out the area of the carpet.

.....m²

(1)

2. (a) Simplify

(i) $e + f + e + f + e$

.....

(ii) $p^2 + p^2 + p^2$

.....

(2)

(b) Work out the value of $5x + 1$ when $x = -3$

.....

(2)

Page Total

Leave blank

3. Nick takes 26 boxes out of his van.
The weight of each box is 32.9 kg.

Work out the **total** weight of the 26 boxes.

..... kg

(3)

4. 60 British students each visited one foreign country last week.
The two-way table shows some information about these students.

	France	**Germany**	**Spain**	**Total**
Female			9	34
Male	15			
Total		25	18	60

(a) Complete the two-way table.

(3)

One of these students is picked at random.

(b) Write down the probability that the student visited Germany last week.

.....

(1)

Leave blank

5. There are 800 students at Prestfield School.

45% of these 800 students are girls.

(a) Work out 45% of 800

.....

(2)

There are 176 students in Year 10.

(b) Write 176 out of 800 as a percentage.

.....%

(2)

6. (a) Work out $\frac{11}{12} - \frac{5}{6}$

.....

(2)

(b) Estimate the value of $\frac{68 \times 401}{198}$

.....

(2)

Page Total

Leave blank

7.

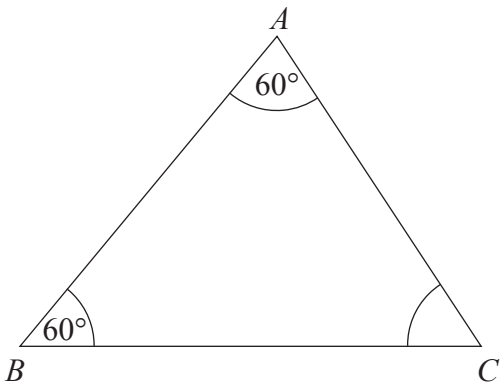


Diagram **NOT** accurately drawn

(a) (i) Find the size of angle *C*.

.....°

(ii) Triangle *ABC* is equilateral.
Explain why.

.....

.....

(2)

(b)

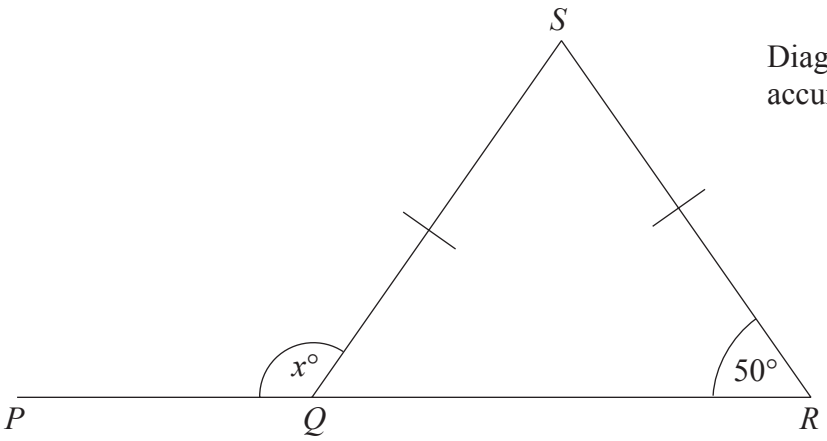


Diagram **NOT** accurately drawn

PQR is a straight line.
SQ = *SR*.

(i) Work out the size of the angle marked *x*°.

.....°

(ii) Give reasons for your answer.

.....

.....

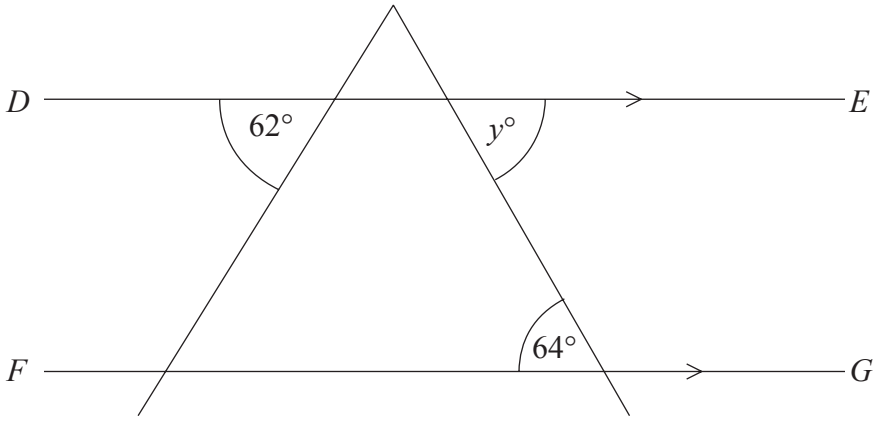
.....

(3)

Leave blank

(c)

Diagram **NOT** accurately drawn



DE is parallel to *FG*.
Find the size of the angle marked $y°$.

°

.....

(1)

8. 20 students scored goals for the school hockey team last month.
The table gives information about the number of goals they scored.

Goals scored	Number of students	
1	9	
2	3	
3	5	
4	3	

Work out the mean number of goals scored.

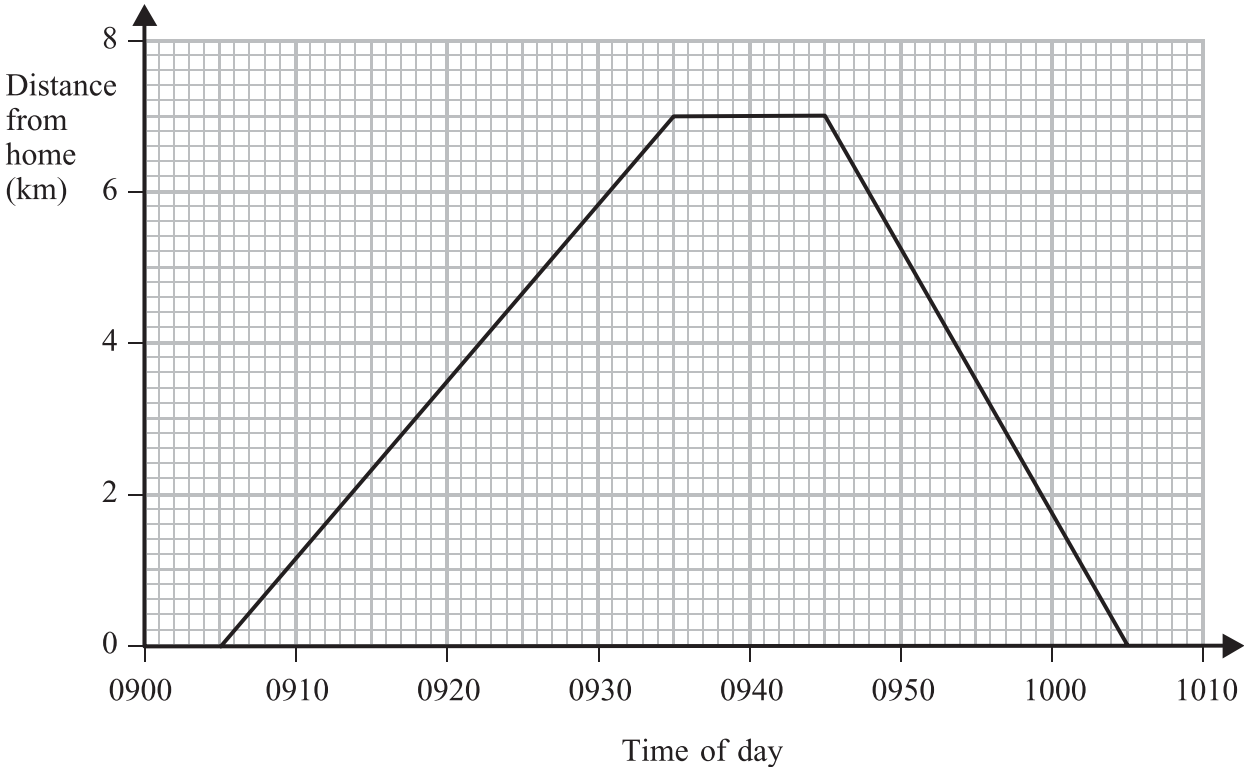
.....

(3)

Page Total

Leave blank

9. Anil cycled from his home to the park.
Anil waited in the park.
Then he cycled back home.
Here is a distance-time graph for Anil's complete journey.



(a) At what time did Anil leave home?

.....
(1)

(b) What is the distance from Anil's home to the park?

..... km
(1)

(c) How many minutes did Anil wait in the park?

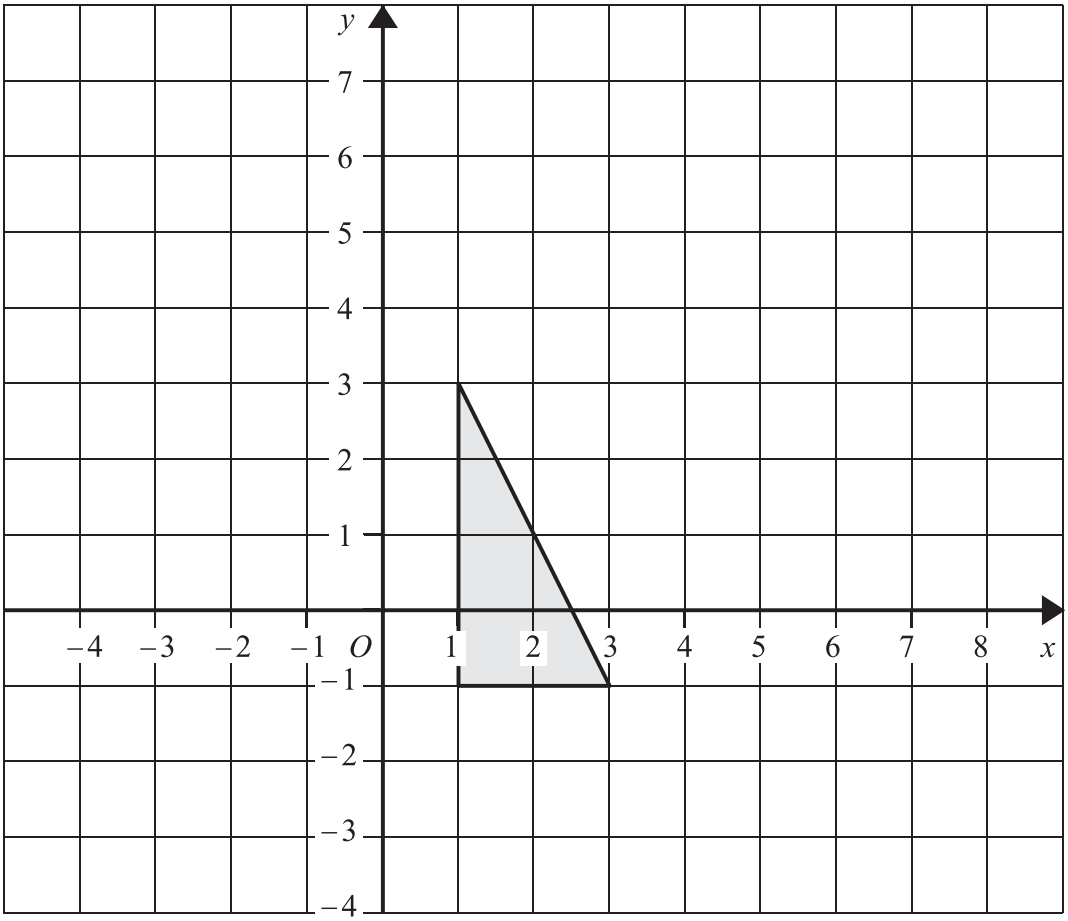
.....
(1)

(d) Work out Anil's average speed on his journey home.
Give your answer in kilometres per hour.

..... kilometres per hour
(3)

Leave blank

10.



Enlarge the shaded triangle by a scale factor 2, centre O.

(3)

11. John says "For all prime numbers, n, the value of $n^2 + 3$ is always an even number".
Give an example to show that John is **not** correct.

(2)

Page Total

Leave blank

12.

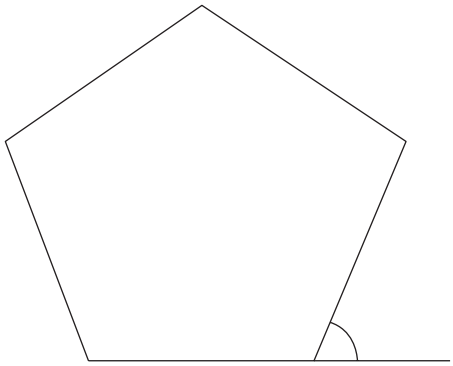


Diagram **NOT** accurately drawn

(a) Work out the size of an exterior angle of a regular pentagon.

.....°

(2)

The area of the pentagon is 8560 mm^2.

(b) Change 8560 mm^2 to cm^2.

..... cm^2

(2)

Each side of another regular pentagon has a length of 101 mm, correct to the nearest millimetre.

(c) (i) Write down the **least** possible length of each side.

..... mm

(ii) Write down the **greatest** possible length of each side.

..... mm

(2)

Leave blank

13.

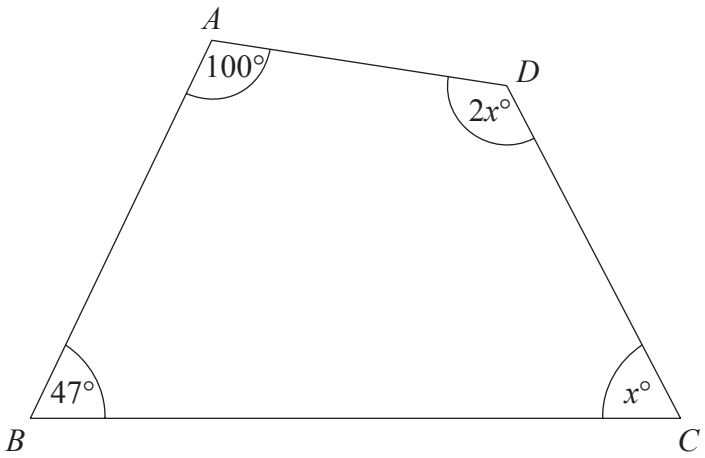


Diagram **NOT** accurately drawn

ABCD is a quadrilateral.

Work out the size of the largest angle in the quadrilateral.

°

.....

(4)

Page Total

Leave blank

14. (a) Use the information that

$$13 \times 17 = 221$$

to write down the value of

(i) 1.3×1.7

.....

(ii) $22.1 \div 1700$

.....

(2)

(b) Use the information that

$$13 \times 17 = 221$$

to find the Lowest Common Multiple (LCM) of 39 and 17

.....

(2)

15. The table shows some expressions.
The letters a, b, c and d represent lengths.
π and 2 are numbers that have no dimensions.
Three of the expressions could represent areas.

Tick (✓) the boxes underneath the **three** expressions which could represent areas.

$\frac{\pi abc}{2d}$	πa^3	$2a^2$	$\pi a^2 + b$	$\pi(a+b)$	$2(c^2+d^2)$	$2ad^2$

(3)

16. The probability that a biased dice will land on a four is 0.2

Pam is going to roll the dice 200 times.

Work out an estimate for the number of times the dice will land on a four.

.....

(2)

Leave blank

17. (a) Express 108 as the product of powers of its prime factors.

.....

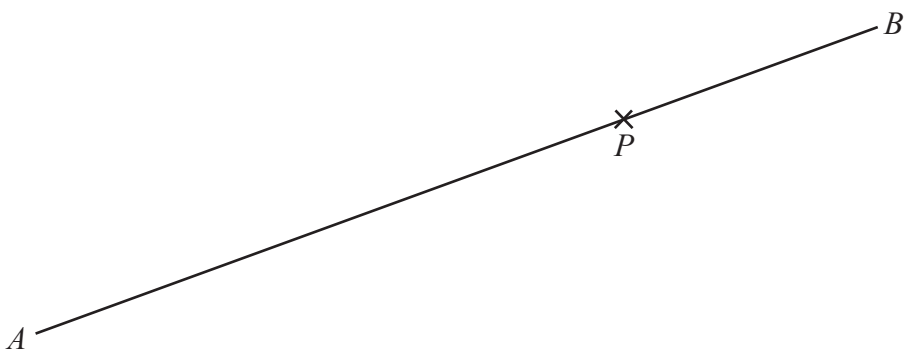
(3)

(b) Find the Highest Common Factor (HCF) of 108 and 24.

.....

(1)

18. Use ruler and compasses to **construct** the perpendicular to the line segment AB that passes through the point P.
You must show all construction lines.



(2)

Page Total

Leave blank

19. The diagram shows a wedge in the shape of a triangular prism.

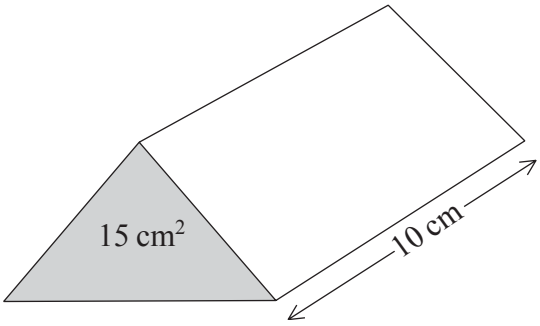


Diagram **NOT** accurately drawn

The cross section of the prism is shown as a shaded triangle.

The area of the triangle is 15 cm^2.
The length of the prism is 10 cm.

Work out the volume of the prism.

.....

(3)

20.

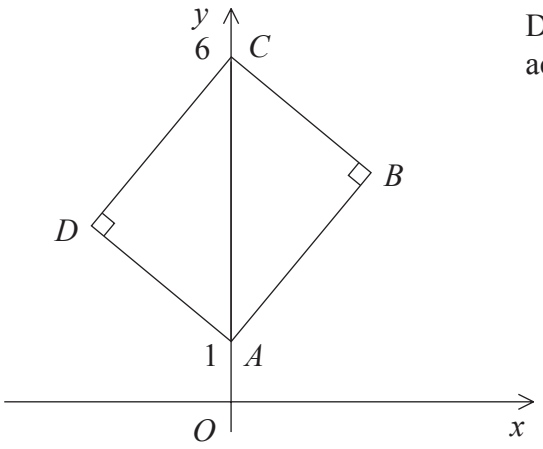


Diagram **NOT** accurately drawn

ABCD is a rectangle.
A is the point (0, 1).
C is the point (0, 6).

The equation of the straight line through *A* and *B* is $y = 2x + 1$

Find the equation of the straight line through *D* and *C*.

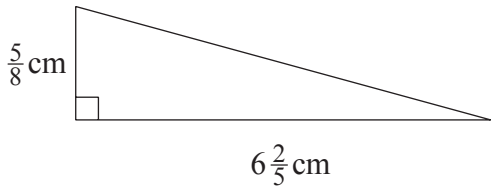
.....

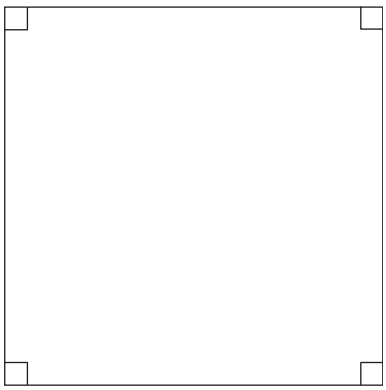
(2)

Leave blank

21.

Diagrams **NOT** accurately drawn





The area of the square is 18 times the area of the triangle.

Work out the **perimeter** of the square.

..... cm
(5)

Page Total

Leave blank

22. (a) Factorise $x^2 - 3x$

.....

(2)

(b) Simplify $k^5 \div k^2$

.....

(1)

(c) Expand and simplify

(i) $4(x + 5) + 3(x - 7)$

.....

(ii) $(x + 3y)(x + 2y)$

.....

(4)

(d) Factorise $(p + q)^2 + 5(p + q)$

.....

(1)

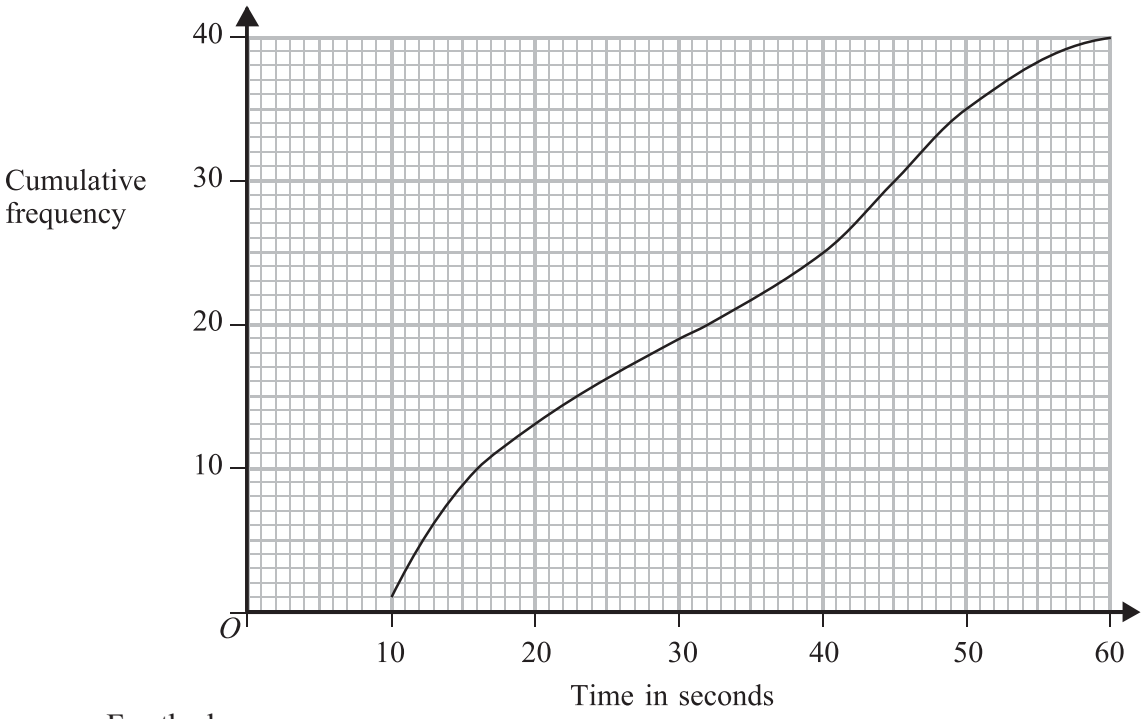
23. 40 boys each completed a puzzle.
The cumulative frequency graph opposite gives information about the times it took them to complete the puzzle.

(a) Use the graph to find an estimate for the median time.

..... seconds

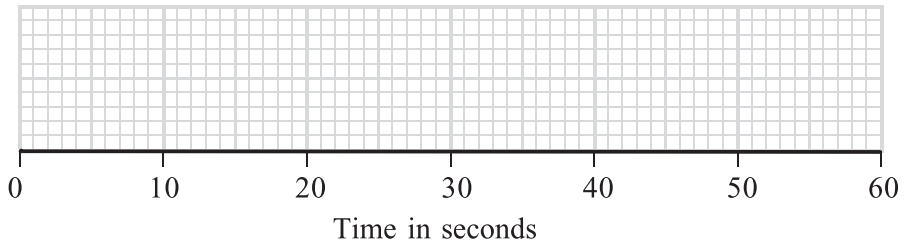
(1)

Leave blank



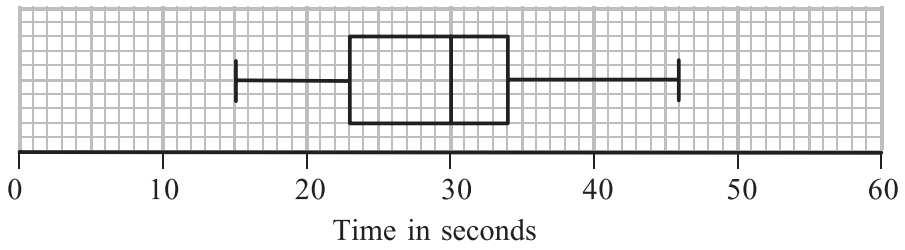
For the boys
the minimum time to complete the puzzle was 9 seconds
and the maximum time to complete the puzzle was 57 seconds.

(b) Use this information and the cumulative frequency graph to draw a box plot showing information about the boys' times.



(3)

The box plot below shows information about the times taken by 40 girls to complete the same puzzle.



(c) Make **two** comparisons between the boys' times and the girls' times.

.....

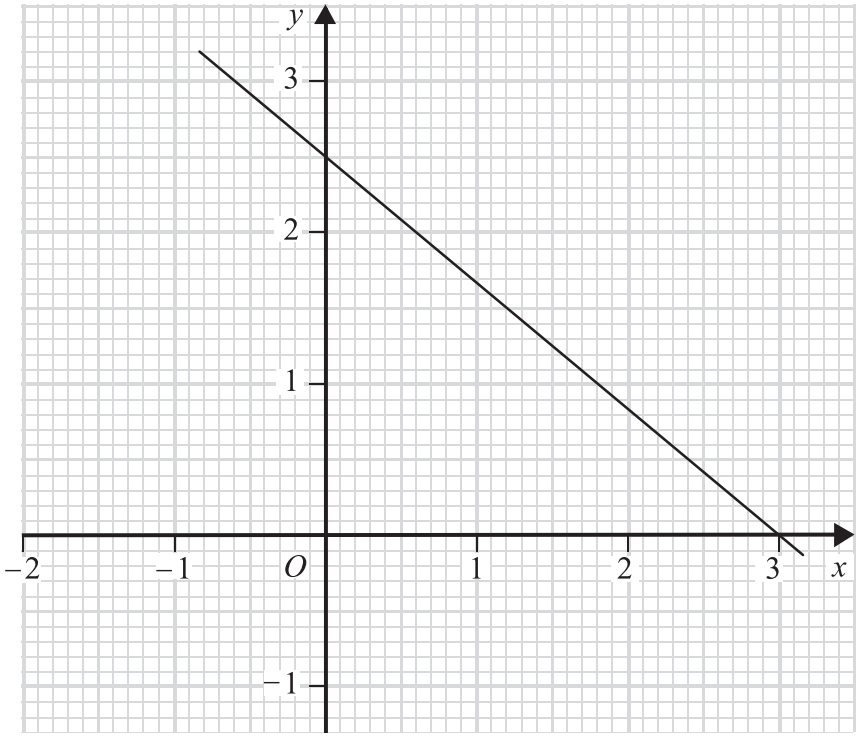
.....

(2)

Page Total

Leave blank

24.



The line with equation $6y + 5x = 15$ is drawn on the grid above.

(a) Rearrange the equation $6y + 5x = 15$ to make y the subject.

$y =$ .....

(2)

(b) The point $(-21, k)$ lies on the line.
Find the value of k.

$k =$ .....

(2)

(c) (i) On the grid, shade the region of points whose coordinates satisfy the four inequalities

$$y > 0, \qquad x > 0, \qquad 2x < 3, \qquad 6y + 5x < 15$$

Label this region ***R***.

P is a point in the region ***R***. The coordinates of P are both integers.

(ii) Write down the coordinates of P.

(..... , ...)

(3)

Leave blank

25.

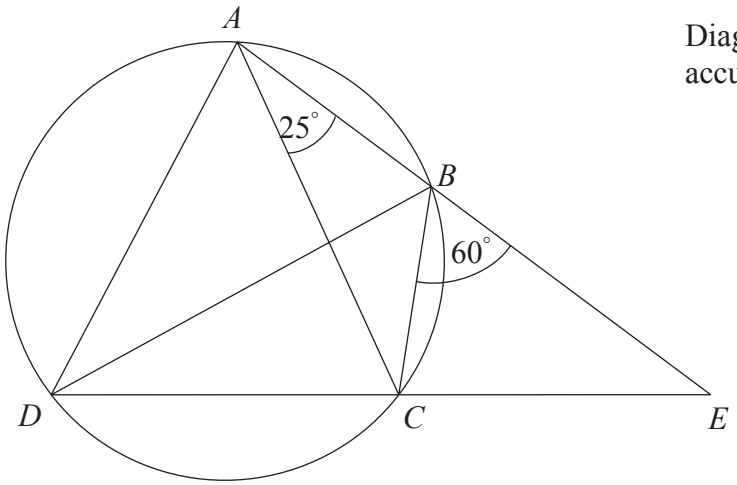


Diagram **NOT** accurately drawn

A, *B*, *C* and *D* are four points on the circumference of a circle.
ABE and *DCE* are straight lines.

Angle *BAC* = 25°.
Angle *EBC* = 60°.

(a) Find the size of angle *ADC*.

.....°

(1)

(b) Find the size of angle *ADB*.

.....°

(2)

Angle *CAD* = 65°.
Ben says that *BD* is a diameter of the circle.

(c) Is Ben correct? You must explain your answer.

.....

.....

(1)

TOTAL FOR PAPER: 100 MARKS

END

Page Total

BLANK PAGE