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

Paper Reference(s)

5523/04

Examiner's use only

Team Leader's use only

Edexcel GCSE

Mathematics A – 1387

Paper 4 (Calculator)

Intermediate Tier

Monday 12 June 2006 – Morning

Time: 2 hours

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

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
There are 28 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 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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Turn over

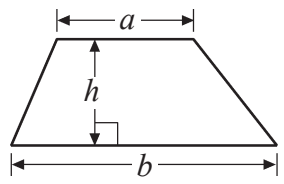
edexcel

GCSE Mathematics 1387/8

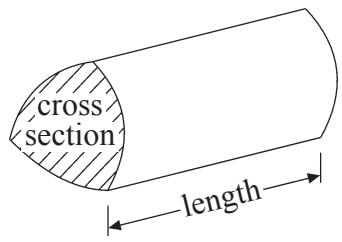
Formulae: Intermediate Tier

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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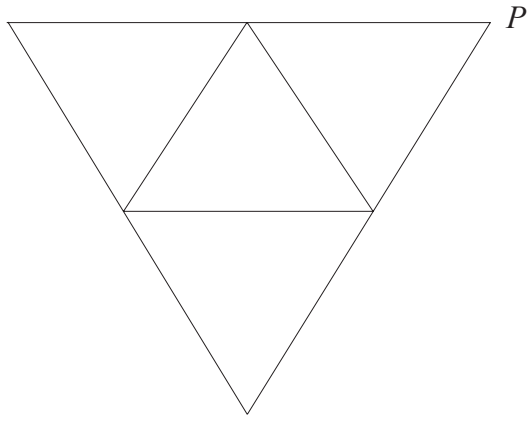
Answer ALL TWENTY EIGHT questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1. Here is the net of a 3-D shape.



The net is folded to make the 3-D shape.
Two other vertices meet at *P*.

Mark each of these vertices with the letter *P*.

Q1

(Total 2 marks)

Leave blank

2. (a) Work out the area of this rectangle.

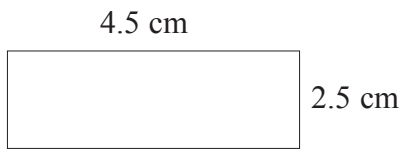


Diagram **NOT** accurately drawn

..... cm^2
(2)

A square has an area of 324 cm².

(b) Work out the length of one side of the square.

Diagram **NOT** accurately drawn

..... cm
(2)

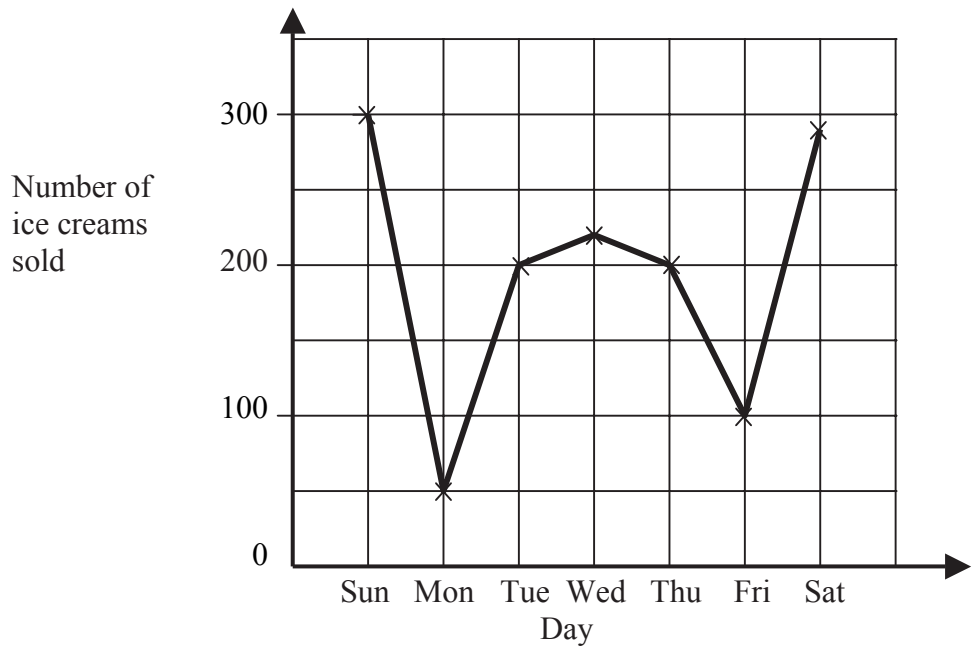
Q2

(Total 4 marks)

M 2 2 5 7 1 A 0 4 2 4

Leave blank

3. The graph shows the number of ice creams sold each day during one week.



(a) How many more ice creams were sold on Tuesday than on Monday?

..... ice creams
(1)

(b) Explain what might have happened on Monday.

.....

.....
(1)

Q3

(Total 2 marks)

4. Simplify

(a) $e + f + e + f + e$

.....
(1)

(b) $2xy + 3xy - xy$

.....
(1)

(c) $3a + 5b - a + 2b + 8$

.....
(2)

Q4

(Total 4 marks)

M 2 2 5 7 1 A 0 5 2 4

Turn over

Leave blank

5. Lewis wants to buy a new pair of trainers.

There are 3 shops that sell the trainers he wants.

Sports '4' All Trainers	**Edexcel Sports Trainers**	**Keef's Sports Trainers**
£5	$\frac{1}{5}$ off	**£50**
plus	usual price of	plus
10 payments of £4.50	**£65**	VAT at $17\frac{1}{2}$%

(a) Work out the cost of a pair of the trainers in Sports '4' All.

£ .....
(2)

(b) Work out the cost of a pair of the trainers in Edexcel Sports.

£ .....
(2)

(c) Work out the cost of a pair of the trainers in Keef's Sports.

£ .....
(2)

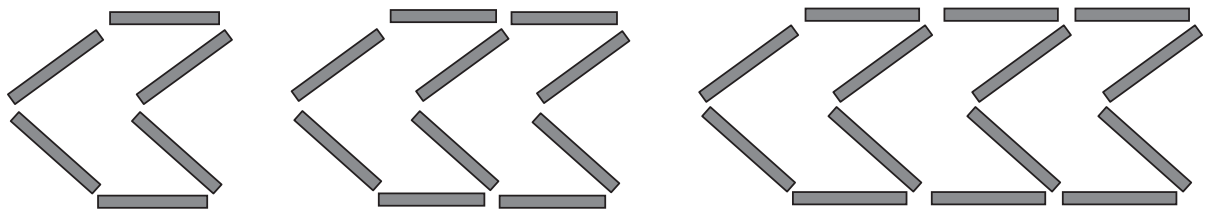
Q5

(Total 6 marks)

M 2 2 5 7 1 A 0 6 2 4

Leave blank

6. Here are some patterns made from sticks.



Pattern number 1 Pattern number 2 Pattern number 3

Complete the table.

Pattern number	Number of sticks
1	6
2	10
3	14
4	18
5	
n	

Q6

(Total 3 marks)

7. Bob lays 200 bricks in 1 hour.
He always works at the same speed.

Work out how long it will take Bob to lay 960 bricks.
Give your answer in hours and minutes.

..... hours ..... minutes **Q7**

(Total 3 marks)

Leave blank

8. Ron went to Spain.

He changed £200 into Euros (€).
The exchange rate was £1 = €1.40

(a) How many Euros did he get?

€ .....
(2)

When he came home he changed €10.64 back into pounds.
The exchange rate was now £1 = € 1.33

(b) How many pounds did he get?

£ .....
(2)

The value of the pound has decreased from €1.40 to €1.33

(c) Calculate the percentage decrease in the value of the pound.

.....%
(3)

Q8

(Total 7 marks)

Leave blank

9. The stem and leaf diagram shows information about the areas of 32 photographs.

0	8 8 9
1	1 1 3 4 4 8 9
2	0 3 5 5 7 8 8 9
3	2 2 3 3 5 6 8 8
4	1 1 3 3 5 8

Key: 4 | 1 represents 41 cm²

(a) Write down the number of photographs that have an area of 38 cm².

.....
(1)

(b) Work out the median.

..... cm²
(2)

Q9

(Total 3 marks)

10. The top of a table is a circle.
The radius of the top of the table is 50 cm.

(a) Work out the area of the top of the table.

..... cm²
(2)

The base of the table is a circle.
The diameter of the base of the table is 40 cm.

(b) Work out the circumference of the base of the table.

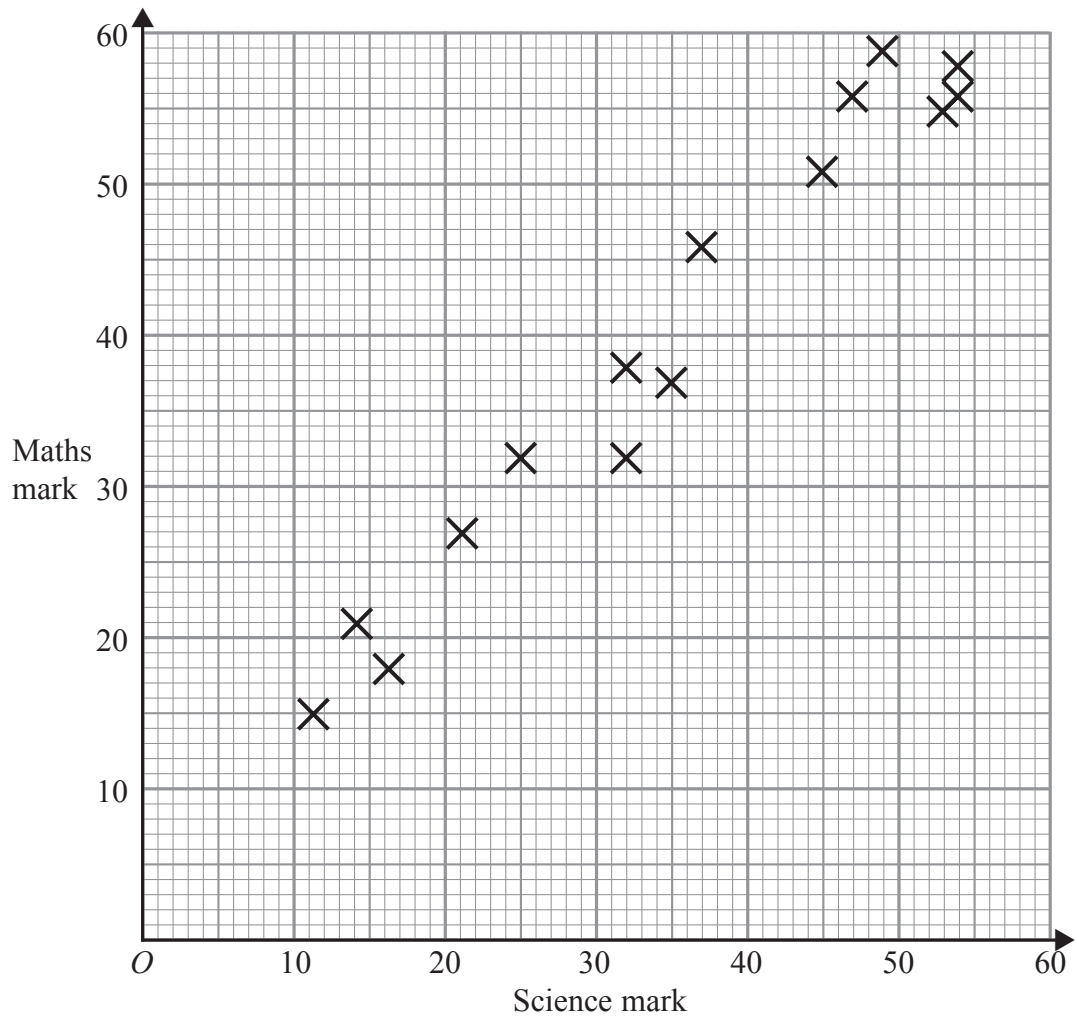
..... cm
(2)

Q10

(Total 4 marks)

Leave blank

11. The scatter graph shows the Science mark and the Maths mark for 15 students.



(a) What type of correlation does this scatter graph show?

.....

(1)

(b) Draw a line of best fit on the scatter graph.

(1)

Sophie's Science mark was 42.

(c) Use your line of best fit to estimate Sophie's Maths mark.

.....

(1)

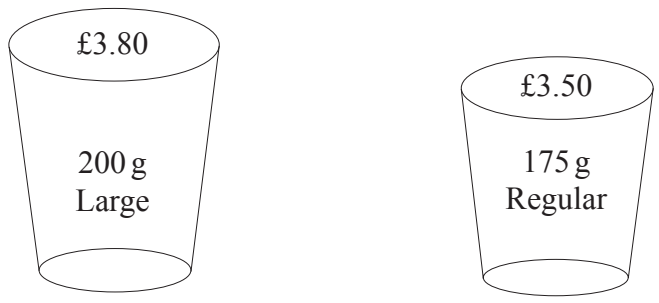
Q11

(Total 3 marks)

M 2 2 5 7 1 A 0 1 0 2 4

Leave blank

12.



A Large tub of popcorn costs £3.80 and holds 200 g.
A Regular tub of popcorn costs £3.50 and holds 175 g.

Rob says that the 200 g Large tub is the better value for money.
Linda says that the 175 g Regular tub is the better value for money.

Who is correct?

.....

Explain the reasons for your answer.
You must show all your working.

Q12

(Total 2 marks)

13. $v = u + 10t$

Work out the value of v when

(a) $u = 10$ and $t = 7$

$v =$ .....
(2)

(b) $u = -2.5$ and $t = 3.2$

$v =$ .....
(2)
(Total 4 marks)

Q13

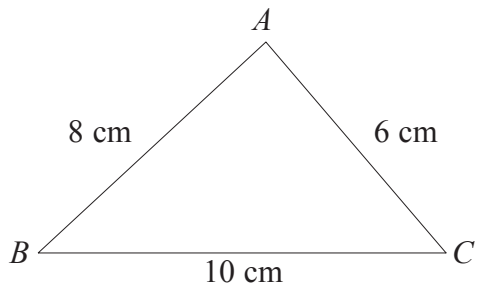
M 2 2 5 7 1 A 0 1 1 2 4

Turn over

Leave blank

14.

Diagram **NOT** accurately drawn



ABC is a triangle.
AB = 8 cm.
AC = 6 cm.
BC = 10 cm.

(a) Use ruler and compasses to construct an accurate drawing of triangle *ABC*.
The line *BC* has been drawn for you.
You must show all your construction lines.

(2)

M 2 2 5 7 1 A 0 1 2 2 4

Leave blank

(b) Use ruler and compasses to construct the perpendicular bisector of the line PQ.
You must show all your construction lines.

P _____ Q

(2) **Q14**

(Total 4 marks)

Leave blank

15. A museum has these charges.

Adult Ticket	£2.50
Child Ticket	£1.25

Family Ticket
(2 adults and 3 children)

£6.50

Mr and Mrs Iqbal and their three children visit the museum.

Work out how much they will save by buying one family ticket rather than 5 separate tickets.

£ .....

Q15

(Total 4 marks)

16. Sophie says, 'For any whole number, n, the value of $6n - 1$ is always a prime number'.

Sophie is wrong.
Give an example to show that Sophie is wrong.

Q16

(Total 2 marks)

Leave blank

17. This item appeared in a newspaper.

> **Cows produce 3% more milk**
>
> A farmer found that when his cow listened to classical music the milk it produced increased by 3%.
>
> This increase of 3% represented 0.72 litres of milk.

Calculate the amount of milk produced by the cow when it listened to classical music.

..... litres **Q17**

(Total 3 marks)

18. (a) Simplify

(i) $x^4 \times x^5$

.....

(ii) $\dfrac{p^8}{p^3}$

.....

(iii) $3s^2t^3 \times 4s^4t^2$

.....

(iv) $(q^3)^4$

.....

(5)

(b) Expand $3(2g - 1)$

.....

(1)

(c) Expand and simplify $(x + 2)(x + 3)$

.....

(2) **Q18**

(Total 8 marks)

Leave blank

19.

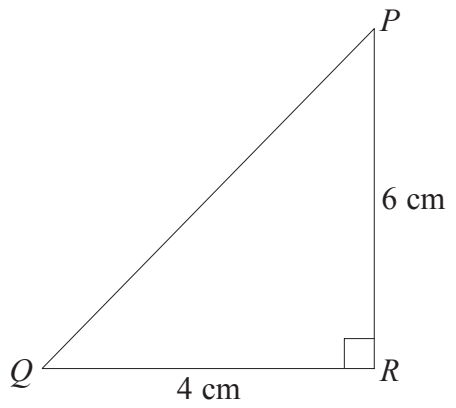


Diagram **NOT** accurately drawn

PQR is a right-angled triangle.

PR = 6 cm.
QR = 4 cm.

Work out the length of *PQ*.
Give your answer correct to 3 significant figures.

..... cm

(Total 3 marks)

Q19

20. Amy, Beth and Colin share 36 sweets in the ratio 2 : 3 : 4

Work out the number of sweets that each of them receives.

Amy ..... sweets

Beth ..... sweets

Colin ..... sweets

(Total 3 marks)

Q20

M 2 2 5 7 1 A 0 1 6 2 4

Leave blank

21. Bill recorded the times, in minutes, taken to complete his last 40 homeworks.

This table shows information about the times.

Time (t minutes)	Frequency	
$20 \leqslant t < 25$	8	
$25 \leqslant t < 30$	3	
$30 \leqslant t < 35$	7	
$35 \leqslant t < 40$	7	
$40 \leqslant t < 45$	15	

(a) Find the class interval in which the median lies.

.....
(1)

(b) Calculate an estimate of the mean time it took Bill to complete each homework.

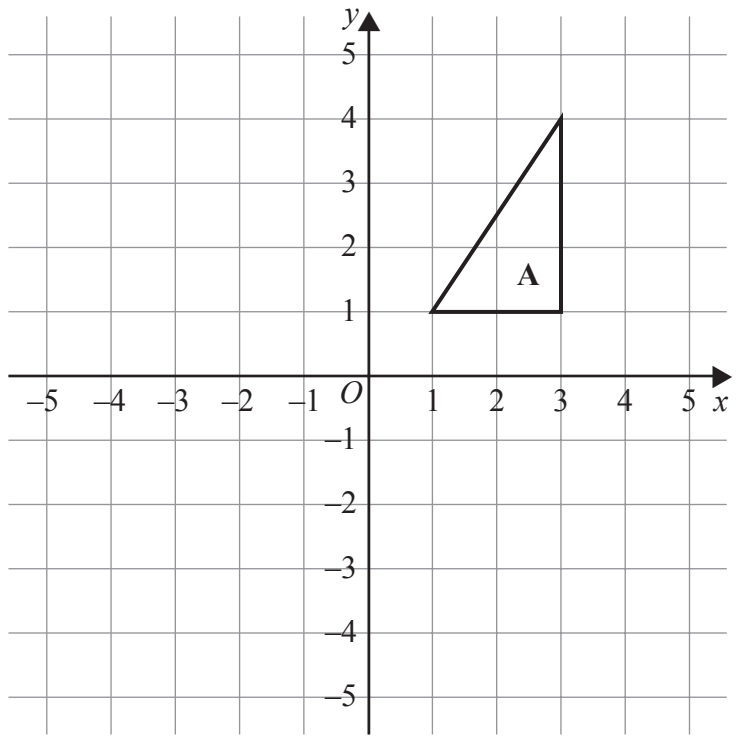
..... minutes
(4)

Q21

(Total 5 marks)

Leave blank

22.



Triangle **A** is reflected in the *y* axis to give triangle **B**.
Triangle **B** is then reflected in the *x* axis to give triangle **C**.

Describe the **single** transformation that takes triangle **A** to triangle **C**.

.....

Q22

(Total 3 marks)

M 2 2 5 7 1 A 0 1 8 2 4

Leave blank

23. (a) Calculate the size of angle a in this right-angled triangle.
Give your answer correct to 3 significant figures.

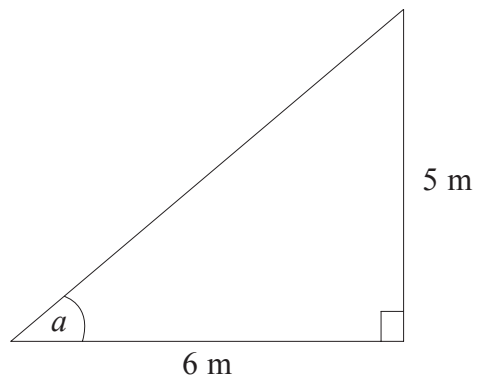


Diagram **NOT** accurately drawn

.....°
(3)

(b) Calculate the length of the side marked x in this right-angled triangle.
Give your answer correct to 3 significant figures.

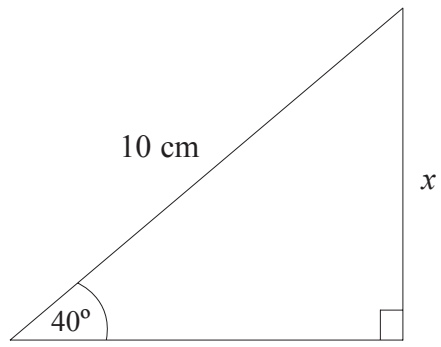


Diagram **NOT** accurately drawn

..... cm
(3)

Q23

(Total 6 marks)

M 2 2 5 7 1 A 0 1 9 2 4

Turn over

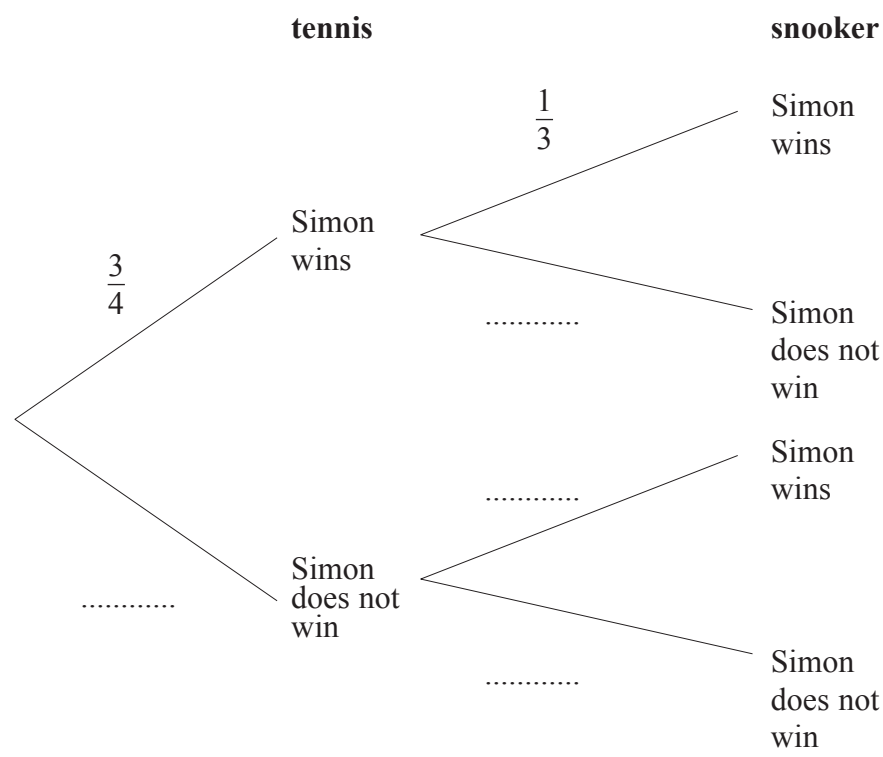
Leave blank

24. Simon plays one game of tennis and one game of snooker.

The probability that Simon will win at tennis is $\frac{3}{4}$

The probability that Simon will win at snooker is $\frac{1}{3}$

Complete the probability tree diagram.



(Total 2 marks)

Q24

25. Work out $\dfrac{\sqrt{2.56 + 3.50}}{8.765 - 6.78}$

(a) Write down all the figures on your calculator display.

.....

(2)

(b) Give your answer to part (a) to an appropriate degree of accuracy.

.....

(1)

Q25

(Total 3 marks)

M 2 2 5 7 1 A 0 2 0 2 4

Leave blank

26. Barry buys 25 identical pens for £3.25

Work out the cost of 35 of these pens.

£ **Q26**

(Total 2 marks)

27. Solve the simultaneous equations.

$$5a + 3b = 9$$
$$2a - 3b = 12$$

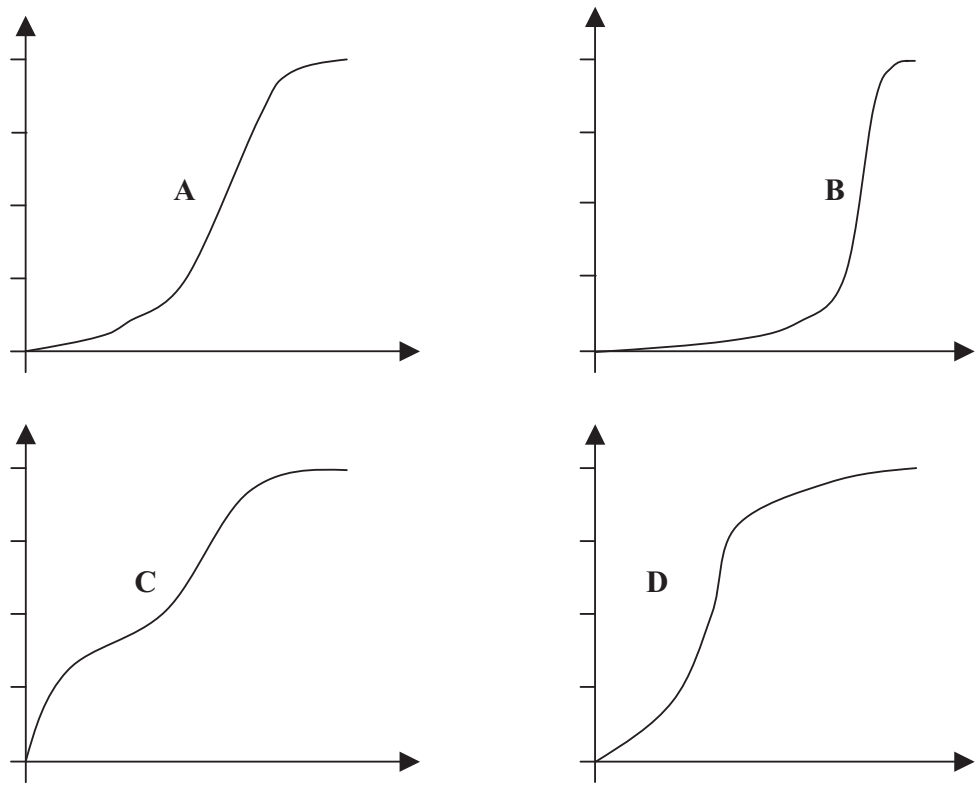
$a =$ .....

$b =$ **Q27**

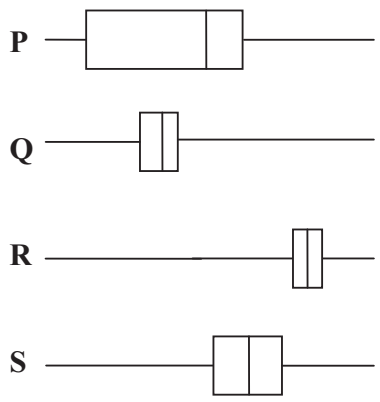
(Total 3 marks)

Leave blank

28. Here are four cumulative frequency diagrams.



Here are four box plots.



For each box plot, write down the letter of the appropriate cumulative frequency diagram.

P and .....

Q and .....

R and .....

S and **Q28**

(Total 2 marks)

TOTAL FOR PAPER: 100 MARKS

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