

**GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS B**

J567/02

Paper 2 (Foundation Tier)

Candidates answer on the Question Paper

OCR Supplied Materials:
None

- Other Materials Required:**
- Geometrical instruments
 - Tracing paper (optional)
 - Scientific or graphical calculator

SPECIMEN

Duration: 1 hour 30 minutes



Candidate Forename		Candidate Surname	
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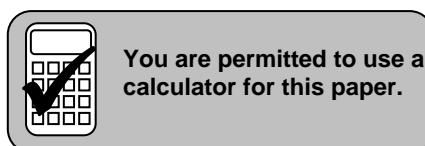
Centre Number						Candidate Number				
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INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Your answers should be supported with appropriate working. Marks may be given for a correct method even if the answer is incorrect.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided.

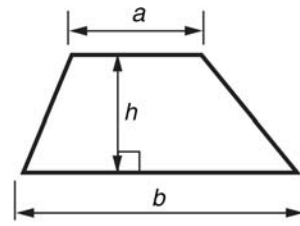
INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- You are permitted to use a calculator for this paper.
- Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
- The total number of marks for this paper is **100**.
- This document consists of **24** pages. Any blank pages are indicated.

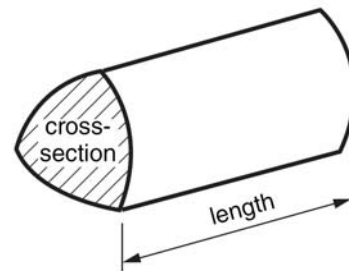


Formulae Sheet: Foundation Tier

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



Volume of prism = (area of cross-section) \times length



PLEASE DO NOT WRITE ON THIS PAGE

1 Complete.

(a) $197 + \underline{\hspace{2cm}} = 320$

[1]

(b) $32 \times \underline{\hspace{2cm}} = 3200$

[1]

(c) 48% of 2400 = $\underline{\hspace{2cm}}$

[1]

2 Fill in the missing number and complete the rule for each number pattern below.

Number pattern					Rule
34	29	24	19	$\underline{\hspace{1cm}}$	subtract $\underline{\hspace{1cm}}$
48	24	$\underline{\hspace{1cm}}$	6	3	$\underline{\hspace{3cm}}$

[4]

3 Aleksandra runs an activity camp for children.

(a) The camp is open from 8:00 am until 5:30 pm each day.

How long is the camp open each day?

(a) _____ hours _____ minutes [1]

(b) Aleksandra uses this rule to work out how many adult helpers she needs.

Number of children \div 8

How many adult helpers does she need for 40 children?

(b) _____ [1]

(c) Here are the charges for the activity camp.

Monday to Friday	
Half day	£12.50
Full day	£25.00
Full week (advance payment)	£108.00

How much money do you save by paying for a full week in advance instead of 5 separate days?

(c) £ _____ [3]

(d) One day the children have a choice of activities.

Morning	Afternoon
Football (F)	Swimming (S)
Cake decorating (C)	Video making (V)
T-shirt printing (T)	

Each child has to choose a morning activity and an afternoon activity.

(i) Complete the table below to show all the possible choices.

Morning	Afternoon
F	S



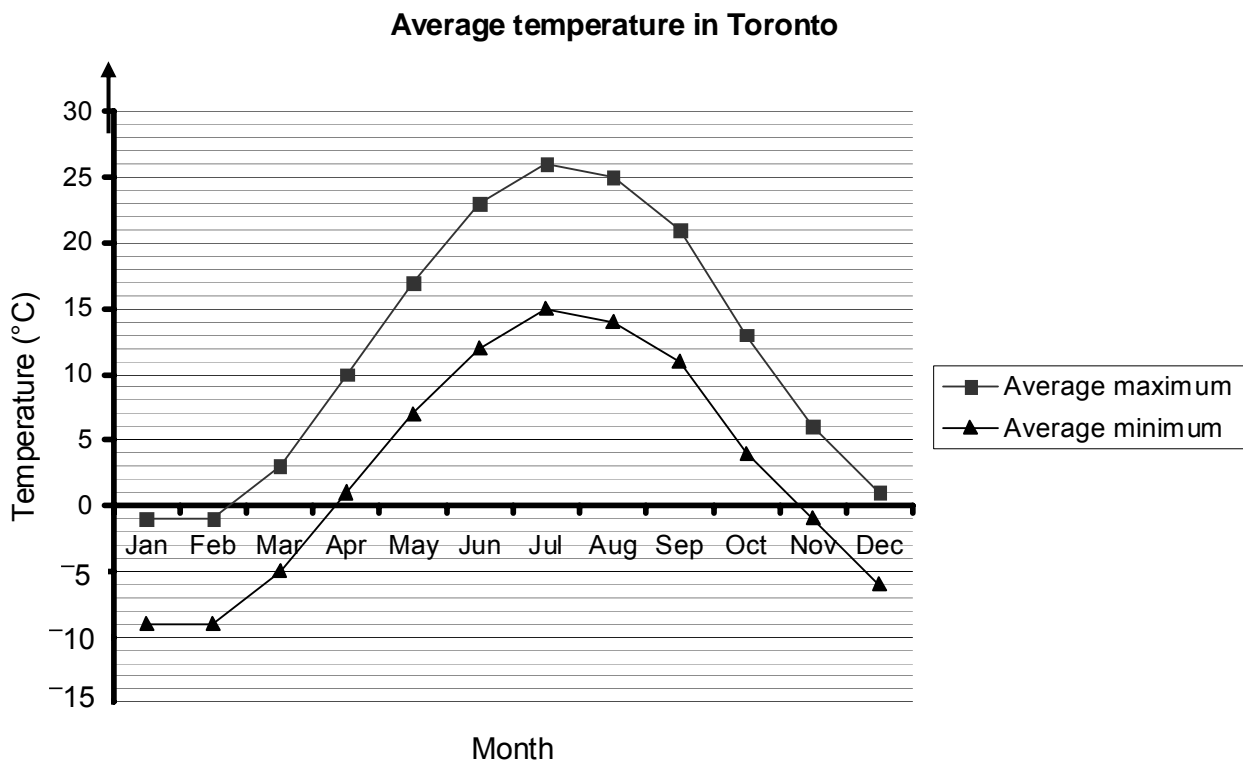
[2]

(ii) Mihai picks his activities at random.

What is the probability that he chooses T-shirt printing and swimming?

(d)(ii) _____ [1]

- 4 (a) The graph shows the average maximum and minimum monthly temperatures in Toronto.



- (i) What is the average maximum temperature in May?

(a)(i) _____ °C [1]

- (ii) Which month has the highest average maximum temperature?

(ii) _____ [1]

- (iii) For how many months is the average minimum temperature below 0°C?

(iii) _____ [1]

- (iv) The highest ever temperature in January was 14°C.

How many degrees warmer than the average maximum temperature for January is this?

(iv) _____ °C [2]

(b) In 2006 the population of Toronto was 2 631 725.

Complete this sentence.

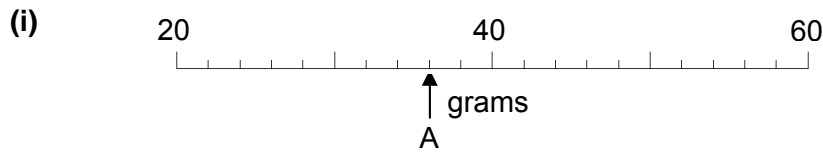
In 2006, the population of Toronto was _____ to the nearest million. [1]

(c) The time in Toronto is 5 hours behind the time in London.

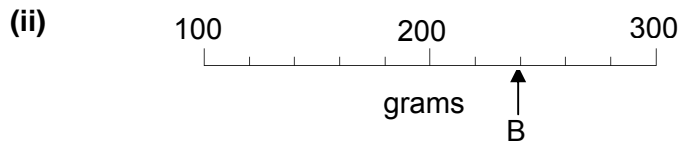
What time is it in Toronto when it is 2:30 pm in London?

(c) _____ [1]

5 (a) What number does each arrow point to?



(a)(i) _____ g [1]



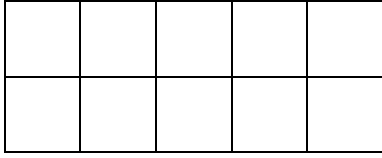
(ii) _____ g [1]

(b) Write these lengths in order, starting with the shortest.

20 cm 20 m 20 mm 0.2 cm 200 cm

_____ [2]
shortest

6 (a) Shade $\frac{2}{5}$ of this shape.



[1]

(b) Work out $\frac{3}{7}$ of 28.

(b) _____ [2]

7 (a) Simplify.

(i) $2b + 3b$

(a)(i) _____ [1]

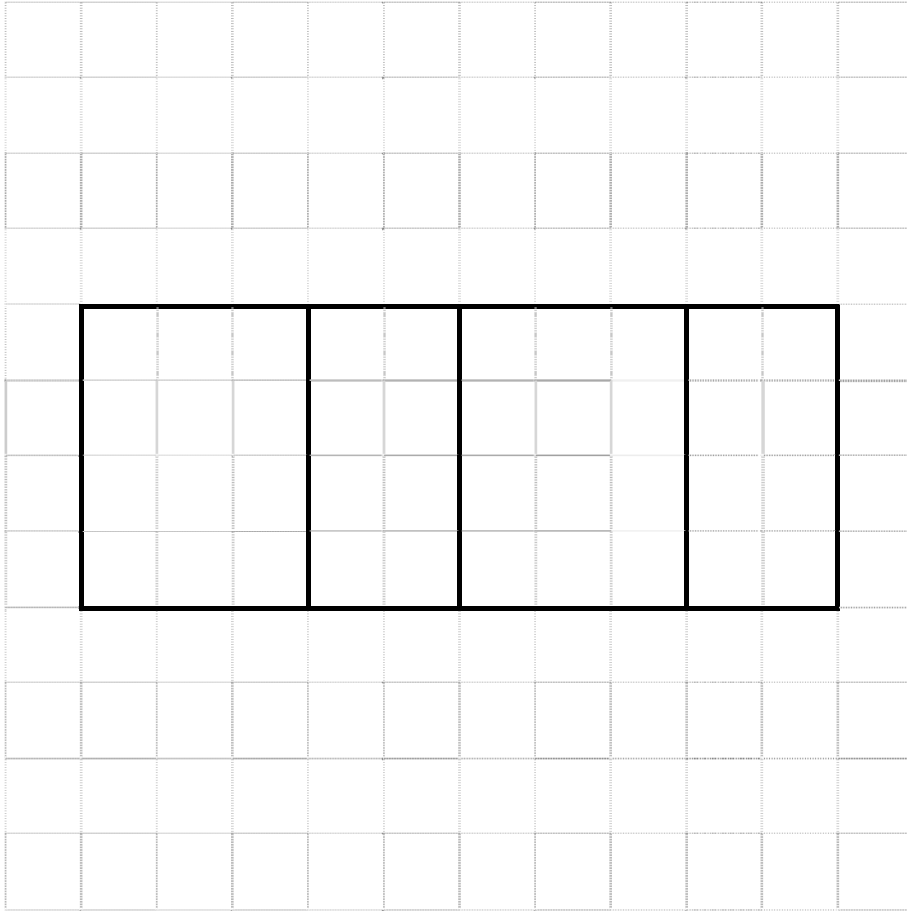
(ii) $4c + 5d + c - 3d$

(ii) _____ [2]

(b) Use the formula $P = 3x + 4y$ to find P when $x = 5$ and $y = 2$.

(b) _____ [2]

- 8 This diagram shows part of a net of a cuboid drawn on a centimetre grid.



(a) Complete the net of the cuboid.

[2]

(b) The net is folded to make the cuboid.

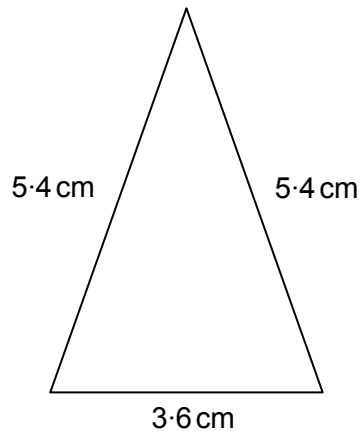
Complete the following.

The cuboid measures _____ cm by _____ cm by _____ cm.

[1]

9 (a) What type of triangle is this?

Ring the correct answer.



equilateral

scalene

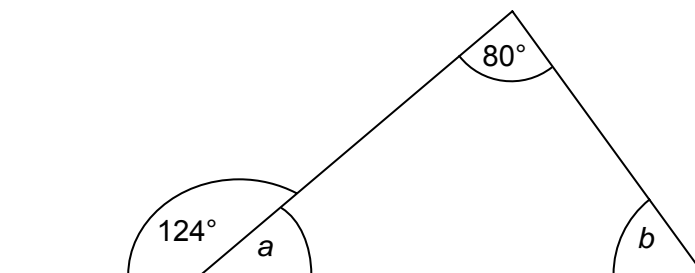
isosceles

[1]

(b) Calculate the perimeter of the triangle.

(b) _____ cm [2]

10



Not to scale

Work out angles a and b .
Give reasons for your answers.

$a =$ _____ $^\circ$ because _____
_____ [2]

$b =$ _____ $^\circ$ because _____
_____ [2]

11 Work out.

(a) 35% of £180

(a) £ _____ [2]

(b) $\frac{43.27 + 16.89}{1.74}$

Give your answer correct to 2 decimal places.

(b) _____ [2]

12* Mrs Crookes draws a shape.
Ravi says it is a parallelogram.
Sam says it is a rectangle.

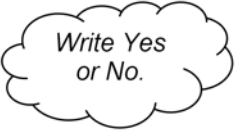
Explain why they could both be correct.

[3]

13 (a) A recipe for milkshake uses $\frac{1}{4}$ litre of milk per person.

Asim is making milkshake for 6 people.
He has a 2 litre carton of milk.

Does he have enough milk?
Explain your answer.



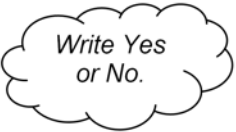
Write Yes
or No.

_____ because _____
_____ [2]

(b) Every half term, Hillcrest School sends a letter to a student's home if a student is late on more than 10% of days.

One half term, Asim was late on 3 out of the 25 days.

Will the school send a letter to Asim's home?
Give a reason for your answer.

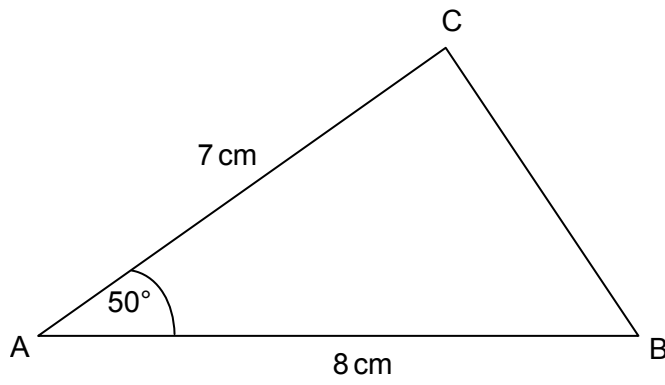


Write Yes
or No.

_____ because _____
_____ [2]

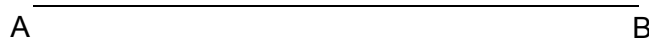
14

13



Not to scale

- (a) Draw accurately triangle ABC.
The side AB has been drawn for you.



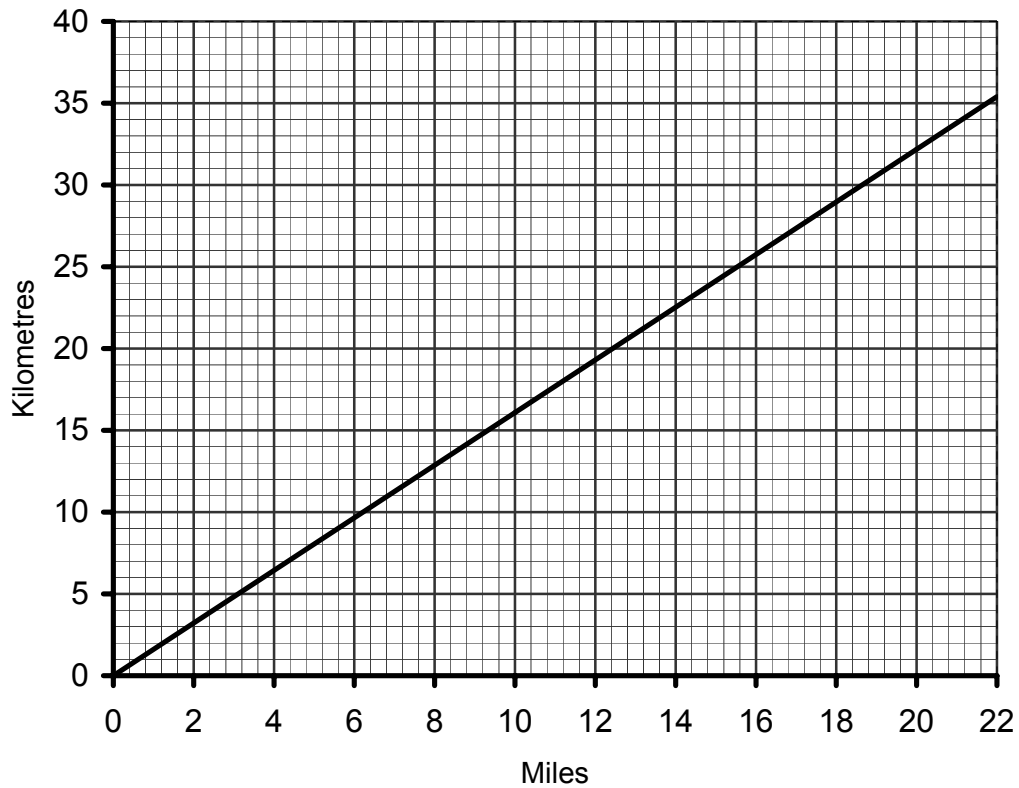
[2]

- (b) Measure the length of side BC.

(b) _____ cm [1]

15 Here is a conversion graph between miles and kilometres.

Conversion graph between miles and kilometres



Ashia and Mel are in training for a marathon.
 One week Ashia runs for a total of 39 miles.
 Mel runs for a total of 68 kilometres.

Who has run further this week and by what distance?

_____ ran further by _____ [4]

16 Donna is doing a survey about the local library.

(a) Here is one of her questions.

How many books do you borrow from the library in a year?

Do you think this is a good question?
Explain your answer.

_____ because _____ [1]

(b) Here is another of her questions.

Do you agree that the library is a good place to do your revision?

Yes No

Write a better version of this question.

_____ [1]

(c) Donna stands inside the library on a Thursday afternoon to do her survey.

Explain why this is not a good idea.

_____ [1]

17 Here is the information panel in Adele's car at the end of a journey.

Journey Time: 3 hours 45 minutes
Average Speed: 77 km/h

- (a) **Estimate** the distance, in kilometres, that she has travelled.
Show how you obtained your estimate.

_____ km [2]

- (b) **Calculate** the distance she has travelled.

(b) _____ km [2]

18* Solve.

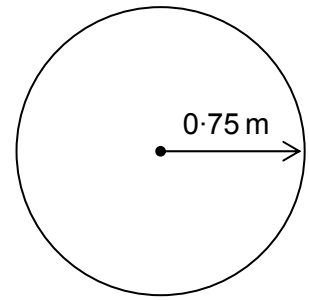
$$6x - 10 = 2x + 8$$

_____ [3]

- 19 Kate has a pond in her garden.
The surface is a circle with radius 0.75 m.

Kate wants to keep fish in the pond.
She finds this information on the internet.

Total length of all the fish should not be more than
5 cm for each 0.1 m^2 of the pond's surface area.



The fish she chooses are each 8 cm long.

What is the maximum number of these fish that Kate can buy for her pond?

[6]

20 (a) In Year 9 at Mowden School there are 140 girls and 84 boys.

Write the ratio of girls to boys in its simplest terms.

(a) _____ [2]

(b) In Year 10 the ratio of girls to boys is 3 : 2.
There are 240 students in this year group.

How many boys are there?

(b) _____ [2]

21 These are the weekly wages, in pounds (£), paid to 11 workers.

275 160 842 275 420 359 315 275 740 280 195

Jermaine says the average wage is £280.

Jane says the average wage is £376.

Show how they can both be correct.

[5]

22 The number 371 is equal to the sum of the cubes of its digits.

$$371 = 3^3 + 7^3 + 1^3 = 27 + 343 + 1 = 371$$

Find which of the following numbers have the same property.

237 153 407

[3]

- 23** Ray and two friends book their summer holiday.
The three of them will share an apartment.
Information about the cost of their holiday is shown below.

Price per person						
Departures on or between						
	7 July - 20 July		21 July - 24 August		25 August - 31 August	
	7 nights	14 nights	7 nights	14 nights	7 nights	14 nights
2 sharing	£562	£662	£610	£710	£610	£672
3 sharing	£526	£588	£571	£633	£573	£633
4 sharing	£508	£550	£552	£595	£554	£595

They book to depart on 30 July and stay for 7 nights.
They each pay a deposit of £120 when they make the booking.

Ray later pays the remaining amount for them all.

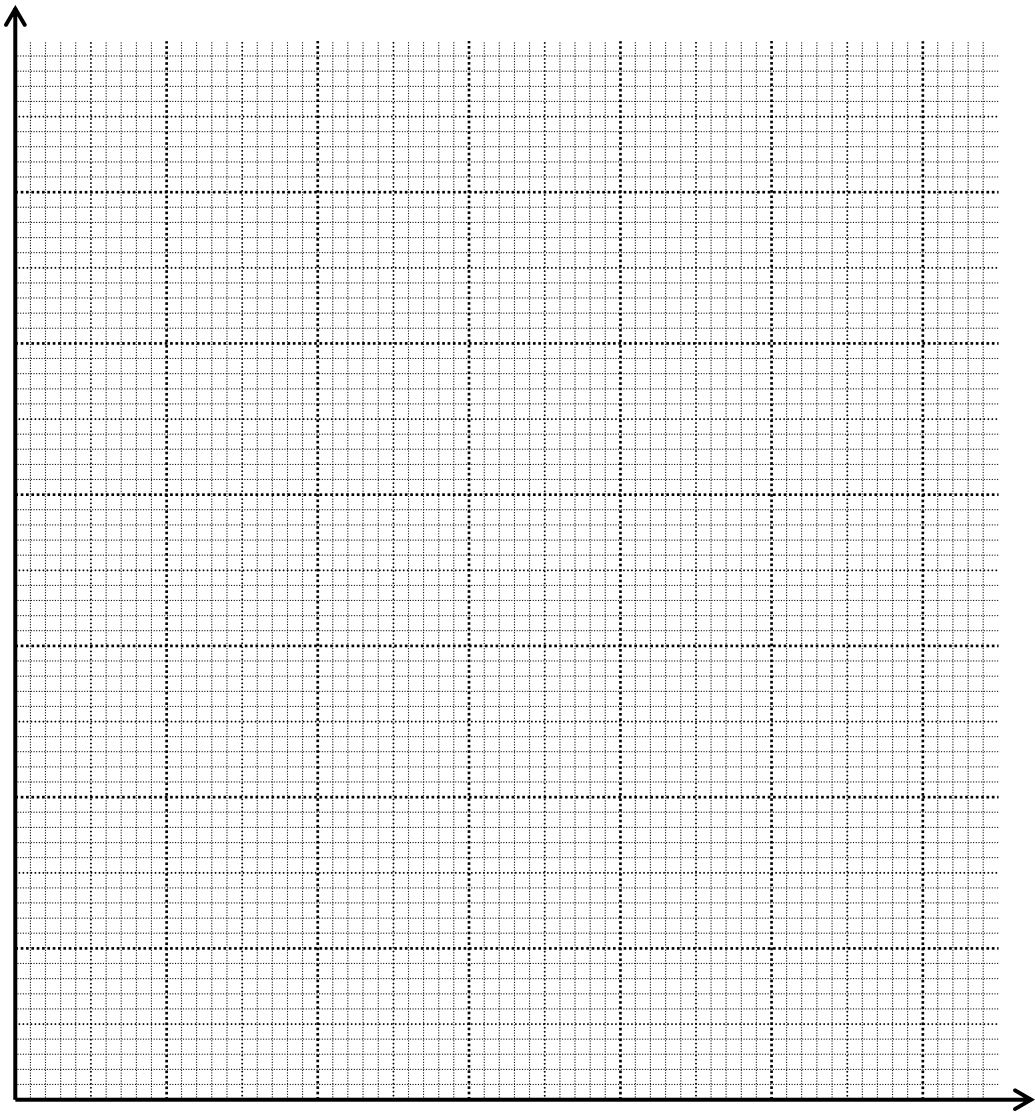
How much is this amount?

£ _____ [2]

24 Mutiah collects 8 leaves from his garden and measures their lengths and widths. His results are shown in the table below.

Which of these leaves come from the same type of tree and which do not?

Leaf	A	B	C	D	E	F	G	H
Length (mm)	144	123	116	149	126	148	118	137
Width (mm)	116	76	62	79	67	50	70	81



[5]

TURN OVER FOR QUESTION 25

25 (a) Factorise.

$$15b + 10$$

(a) _____ [1]

(b) Multiply out and simplify.

$$3(d - 2) + 2(d + 1)$$

(b) _____ [2]

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