

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GCSE**

A502/01

MATHEMATICS A

Unit B (Foundation Tier)

MONDAY 9 JUNE 2014: Morning

DURATION: 1 hour

plus your additional time allowance

MODIFIED ENLARGED

Candidate forename		Candidate surname	
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Centre number						Candidate number				
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Candidates answer on the Question Paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

Geometrical instruments

Tracing paper (optional)

<p>WARNING No calculator can be used for this paper</p>

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.

Use black ink. HB pencil may be used for graphs and diagrams only.

Answer ALL the questions.

Read each question carefully. Make sure 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.

Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).

INFORMATION FOR CANDIDATES

The number of marks is given in brackets [] at the end of each question or part question.

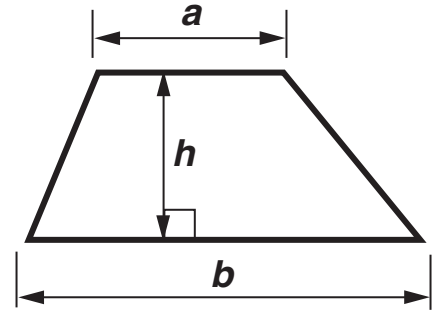
Your quality of written communication is assessed in questions marked with an asterisk (*).

The total number of marks for this paper is 60.

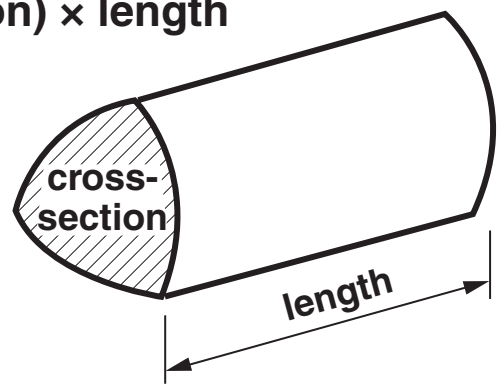
Any blank pages are indicated.

FORMULAE SHEET: FOUNDATION TIER

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



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



Answer ALL the questions.

1 (a) Work out.

$$3.8 - 2.3$$

(a) _____ **[1]**

(b) (i) Complete the following calculation.

$$\square \times 9 = 45$$

[1]

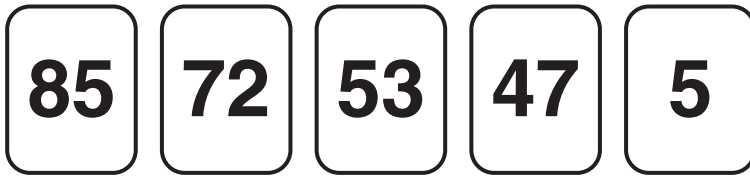
(ii) Rick shares £45 equally between his 5 grandchildren.

How much money does each grandchild receive?

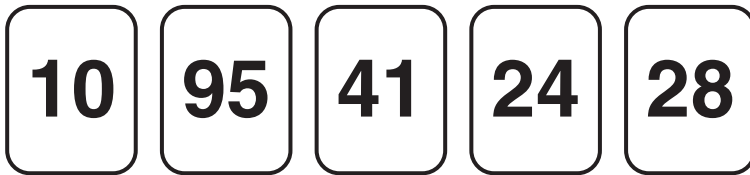
(b)(ii) £ _____ [1]

2 Mark and Laura play a game with number cards.

Mark has these cards.



Laura has these cards.



Mark plays a card.

Laura then plays a card.

Laura wins if these two cards add up to 100.

(a) Mark plays this card.



Which card should Laura play to win?

(a) **[1]**

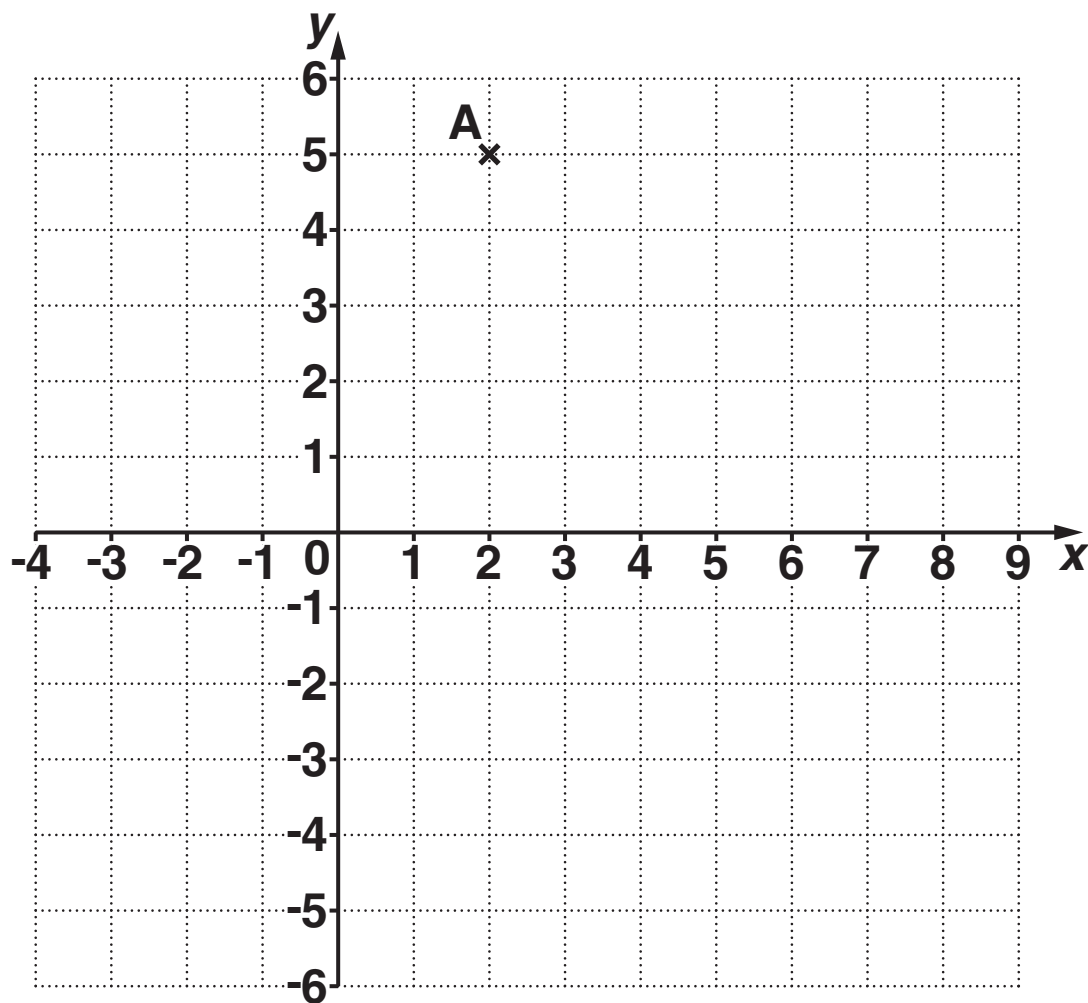
(b) Mark then plays this card.



Explain why Laura cannot win this time.

[2]

3 Point A is plotted on the grid below.



(a) (i) Write down the coordinates of A.

(a)(i) (_____ , _____) [1]

(ii) Plot the point (2, -5).

Label it C.

[1]

(iii) AC is a diagonal of the square ABCD.

Write down the coordinates of one other vertex of the square.

(iii) (_____ , _____) [2]

(b) A circle with centre at $(0, 0)$ passes through $(3, 0)$.

Choose one word from this list to complete the sentence.

tangent

radius

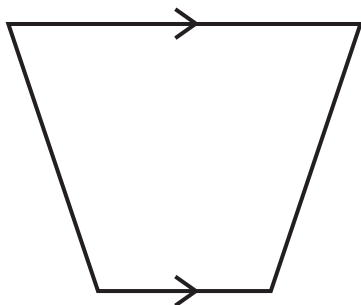
arc

diameter

The straight line joining $(0, 0)$ and $(3, 0)$ is a

_____ of the circle. [1]

- 4 (a) Write down the mathematical name of this quadrilateral.



(a) _____ [1]

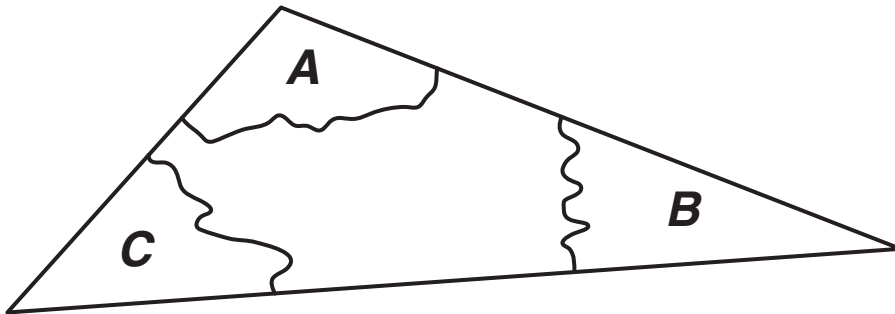
- (b) Helen finds this definition of an obtuse angle in a book.

The last part is missing.

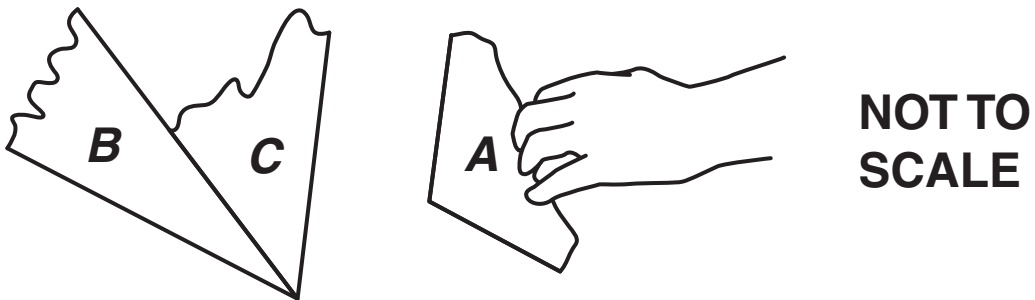
An obtuse angle is larger than 90° but smaller than _____

Write down the missing part of the definition. [1]

- (c) Andreas cuts a triangle from paper.
He writes the letters *A*, *B* and *C* in the corners and then tears the corners off.



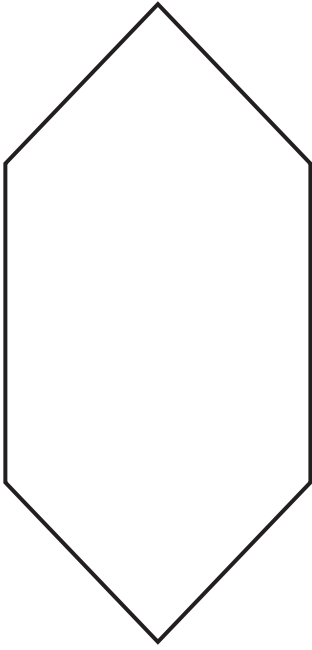
He joins corners *A*, *B* and *C* so that they meet at a point, with no overlap.



What total angle will the three pieces make at the point?

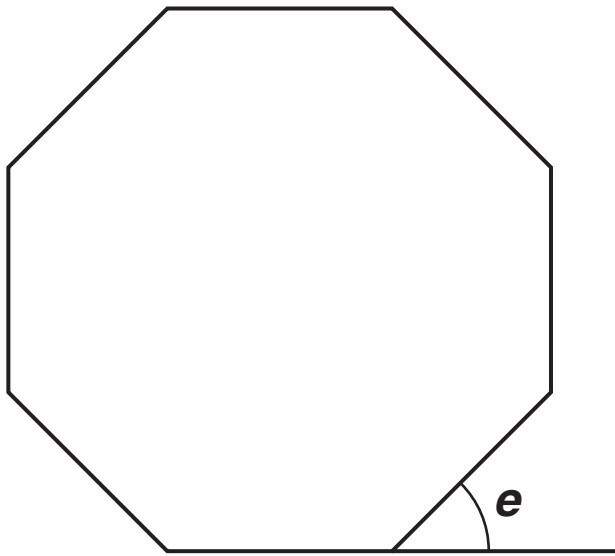
(c) _____ ° [1]

(d) What is the mathematical name of the shape below?



(d) _____ [1]

- (e) This **REGULAR** shape has 8 sides.
One side of the shape is extended as shown
below.



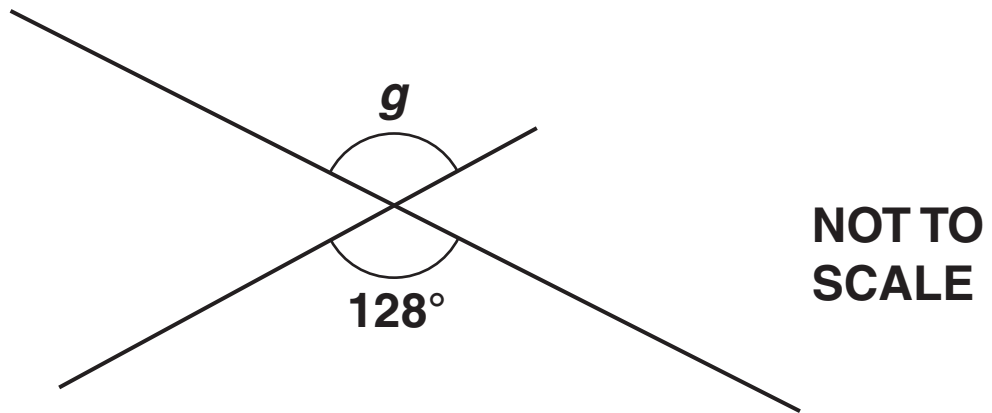
**NOT TO
SCALE**

Work out the size of angle e .

(e) _____ ° [2]

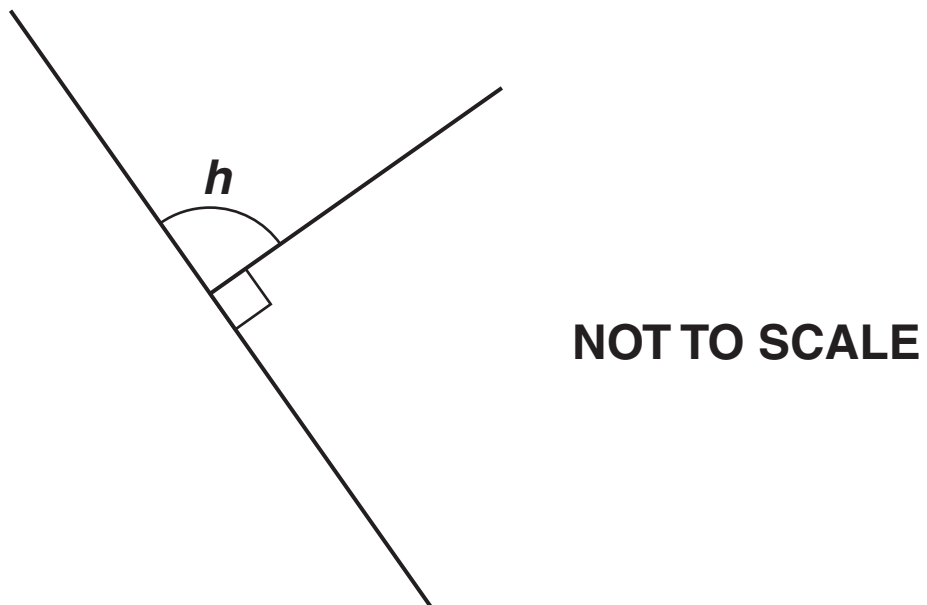
5 (a) Find each angle marked by a letter in the following diagrams.

(i)



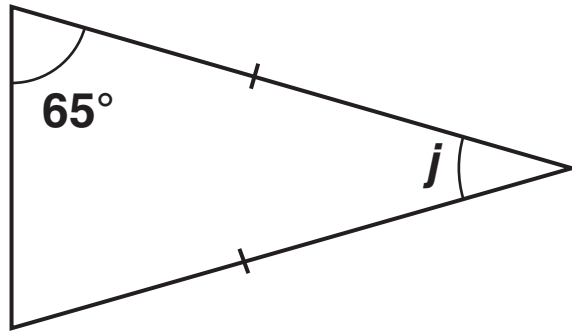
(a)(i) _____ $^\circ$ [1]

(ii)



(ii) _____ $^\circ$ [1]

(iii)

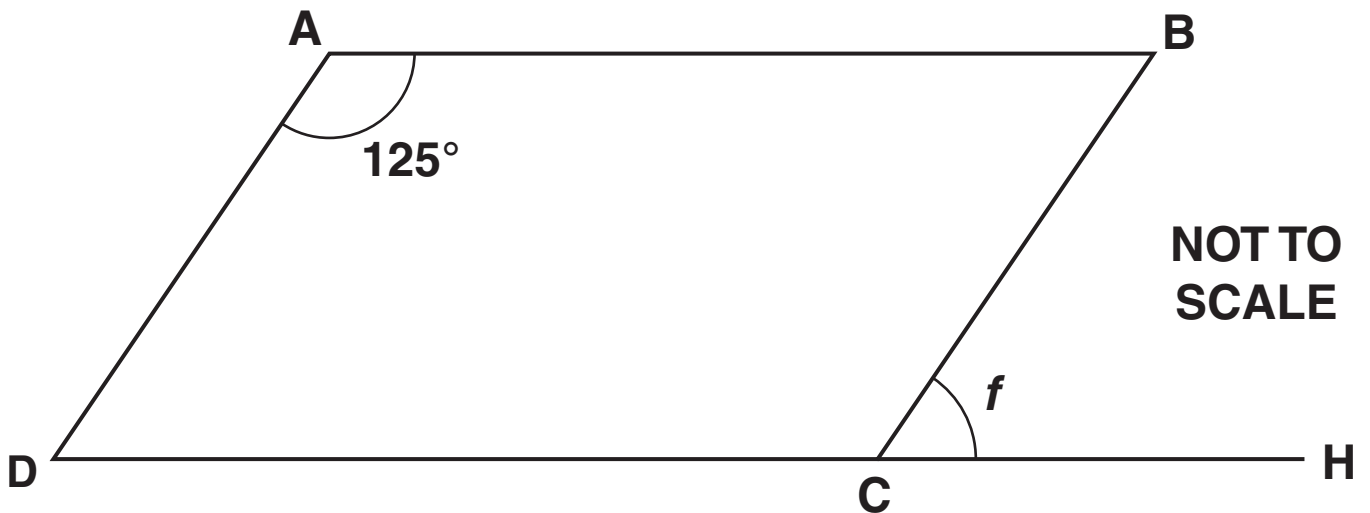


NOT TO SCALE

(iii) _____ $^\circ$ [2]

(b) ABCD is a parallelogram and DCH is a straight line.

Work out angle f .



NOT TO SCALE

(b) _____ $^\circ$ [2]

6 (a) In each row the two statements mean the same.

Write the two missing word statements in the table below.

Statement in numbers and symbols	Word statement
15^2	Fifteen squared
10^3	
$\sqrt{19}$	

[2]

(b) Write the two missing values in the table below.

Statement		Value
5^3	=	125
11^2	=	
$\sqrt{64}$	=	

[2]

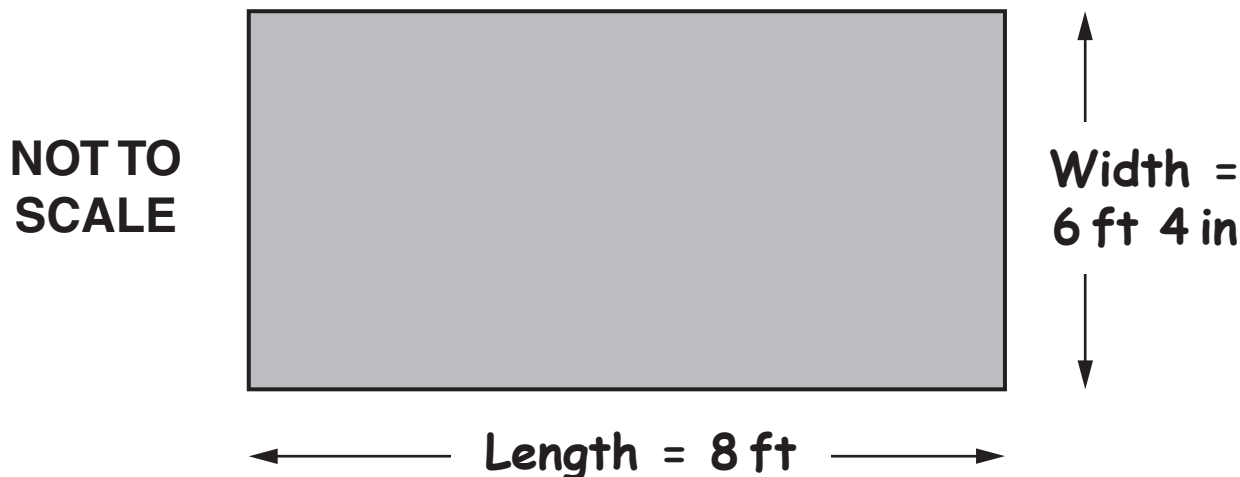
(c) Work out this calculation.

$$\frac{2^4 \times 2}{2^2}$$

(c) _____ **[3]**

- 7* Barry wants to buy a bedroom carpet.
He measures the length and width of his bedroom in feet (ft) and inches (in).

Plan of Barry's bedroom floor



CONVERSIONS BETWEEN UNITS

1 in	= 2.5 cm
1 ft	= 12 in
1 ft	= 30 cm
1 m	= 100 cm

In the carpet shop he sees a rectangular piece of carpet that is 2.5 m by 1.9 m.

From this, could Barry cut ONE PIECE of carpet to fit his bedroom floor? [5]

**8 Anum has a job delivering leaflets.
He is paid £8 each week and then 4p for every leaflet
he delivers.**

(a) One week, Anum delivers 100 leaflets.

How much is his pay that week?

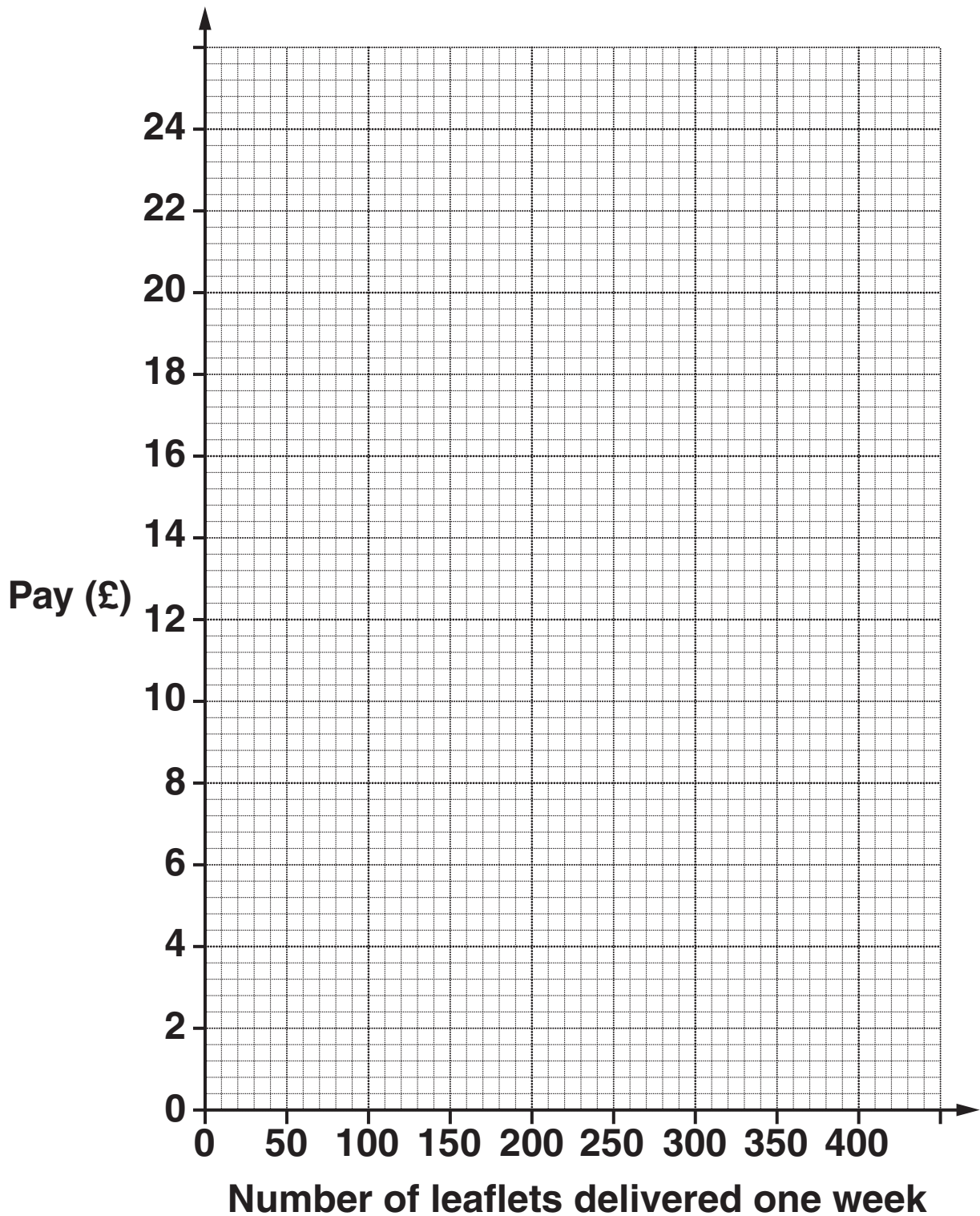
(a) £ _____ [2]

(b) Complete this table.

Number of leaflets delivered one week	100	200	300	400
Pay (£)		16		

[2]

(c) On the grid below, plot these values and draw a line graph showing Anum's pay for delivering up to 400 leaflets one week.



[3]

(d) Another week Anum's pay is £18.

How many leaflets did Anum deliver that week?

(d) _____ [1]

- (e) Anum writes down this formula for calculating his pay, £ w , when he delivers n leaflets in a week.

$$w = 8 + 4 \times n$$

- (i) Show that this formula does NOT give the correct pay for delivering 200 leaflets in a week.

[2]

- (ii) Change Anum's formula so that it does give the correct pay for delivering 200 leaflets in a week.

(e)(ii) $w =$ _____ [1]

- 9 Julie asked three of her friends to estimate how much of the time it rained during their holidays. Their holidays were all the same length of time.**

Eliot 40% of the time

Harpreet $\frac{5}{12}$ of the time

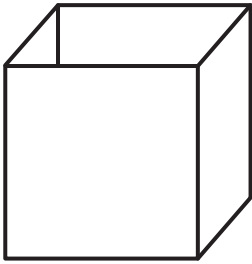
Megan $\frac{3}{8}$ of the time

**Put these estimates in order, starting with the smallest.
You must show your method clearly.**

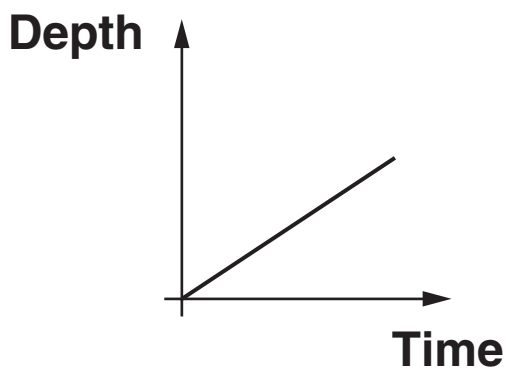
smallest

[4]

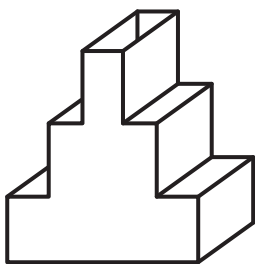
10 This empty container is filled with water at a constant rate.



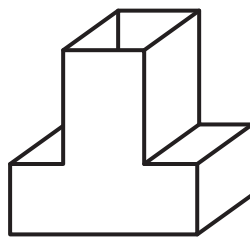
The graph of depth of water against time looks like this.



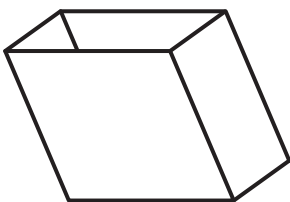
Four more empty containers are shown below. Each of these containers is filled with water at a constant rate.



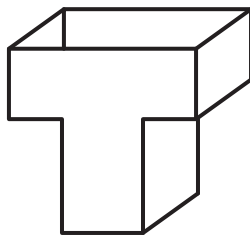
A



B



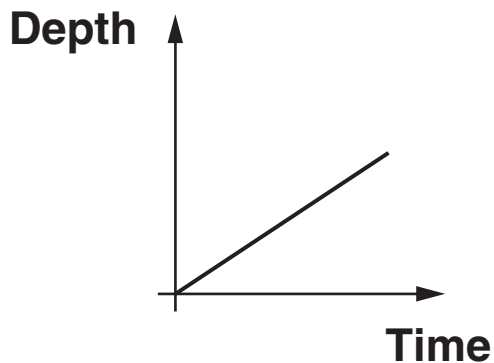
C



D

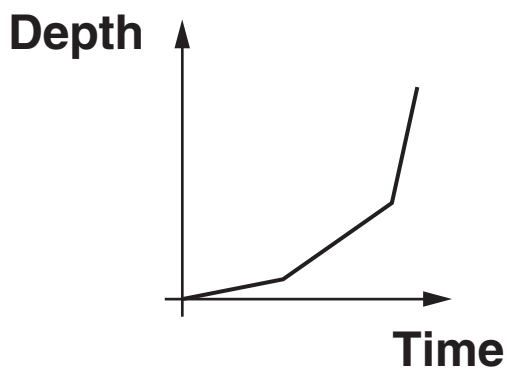
Choose which of these containers matches each of the graphs.

(a)



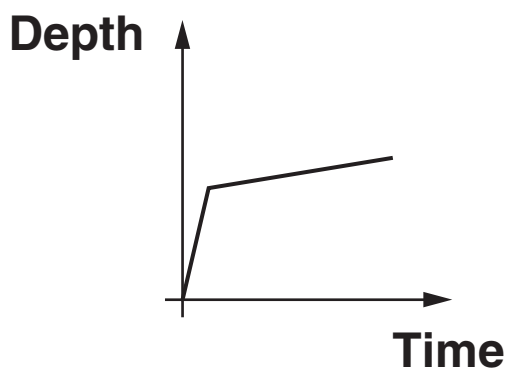
(a) Container _____ [1]

(b)



(b) Container _____ [1]

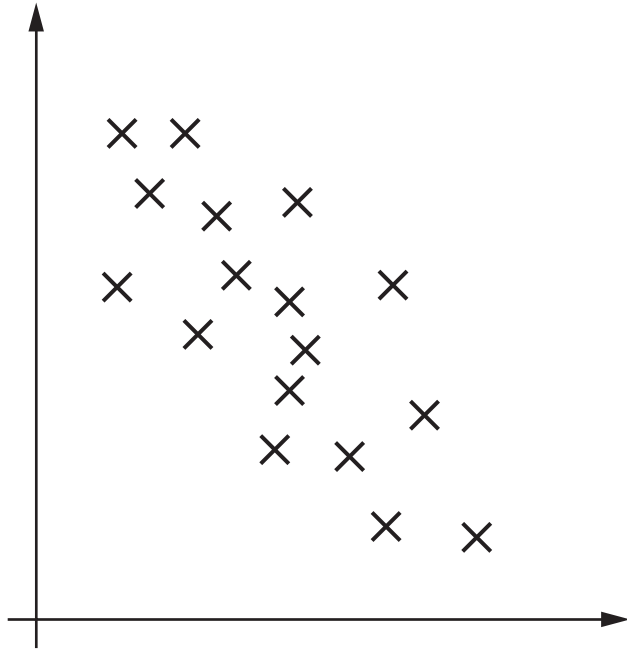
(c)

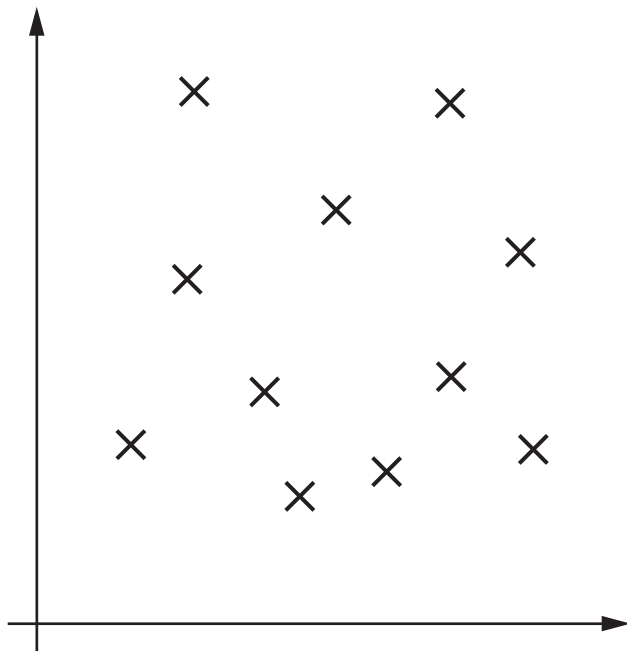


(c) Container _____ [1]

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11 (a) Describe the correlation shown in each of these scatter graphs shown below.
If appropriate, also describe the strength of the correlation.





[3]

- (b) A student measures the reaction time for each of ten people of different ages.
The results are given in the table below.

Age (years)	8	16	20	27	35	44	56	65	70	79
Reaction time (seconds)	0.44	0.34	0.28	0.28	0.27	0.30	0.28	0.34	0.38	0.40

The results are plotted on the scatter graph on the opposite page.

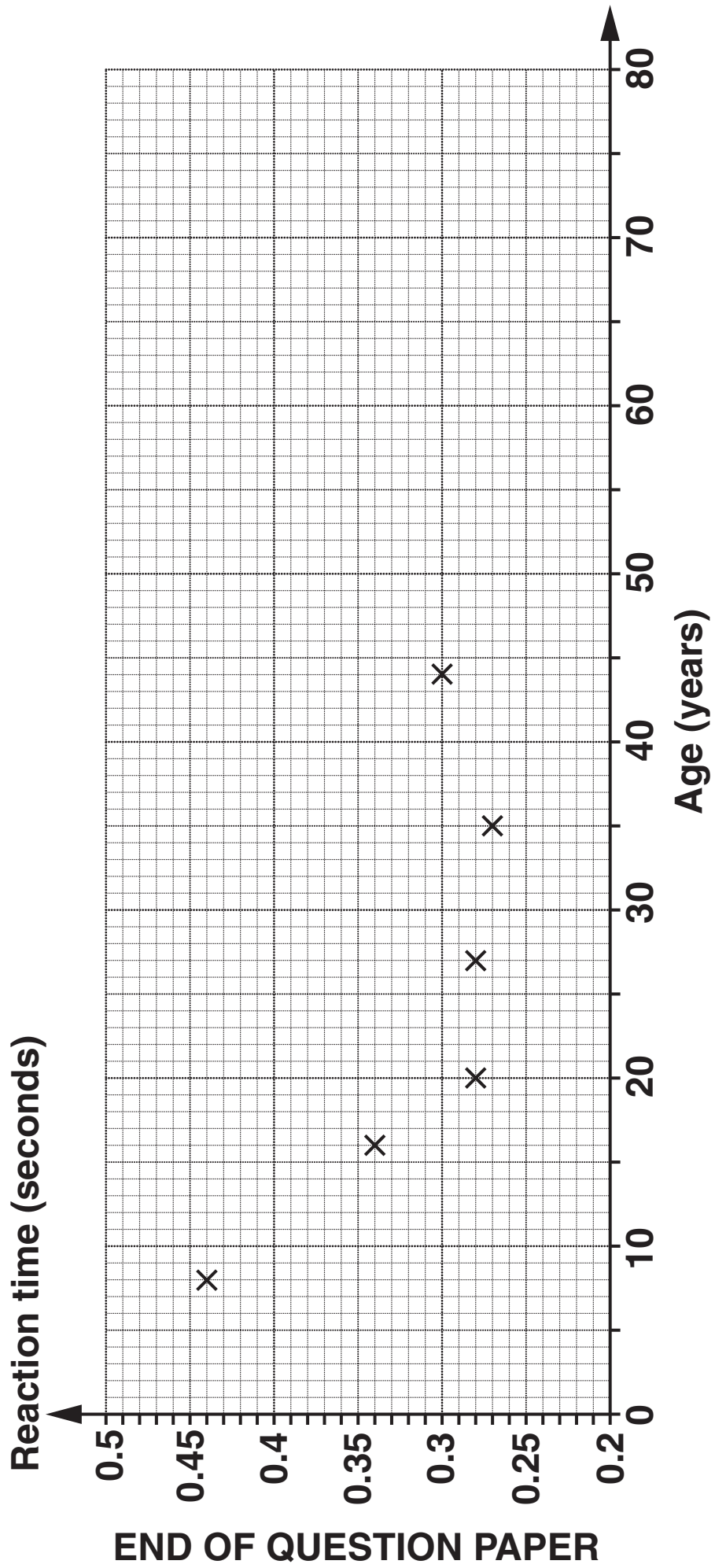
- (i) Complete the scatter graph.
The first six results have been plotted for you. [2]

- (ii) Why is it not sensible to draw a line of best fit?

_____ [1]

- (iii) Describe the relationship between age and reaction time shown by your graph.

_____ [1]



END OF QUESTION PAPER



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