

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GCSE
A502/01
MATHEMATICS A
Unit B (Foundation Tier)
THURSDAY 21 MAY 2015: Morning
DURATION: 1 hour
plus your additional time allowance
MODIFIED ENLARGED 24pt**

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.

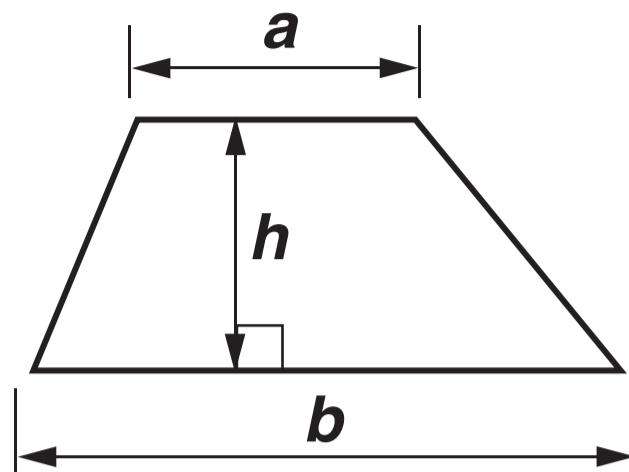
Your quality of written communication is assessed in questions marked with an asterisk (*).

The total number of marks for this paper is 60.

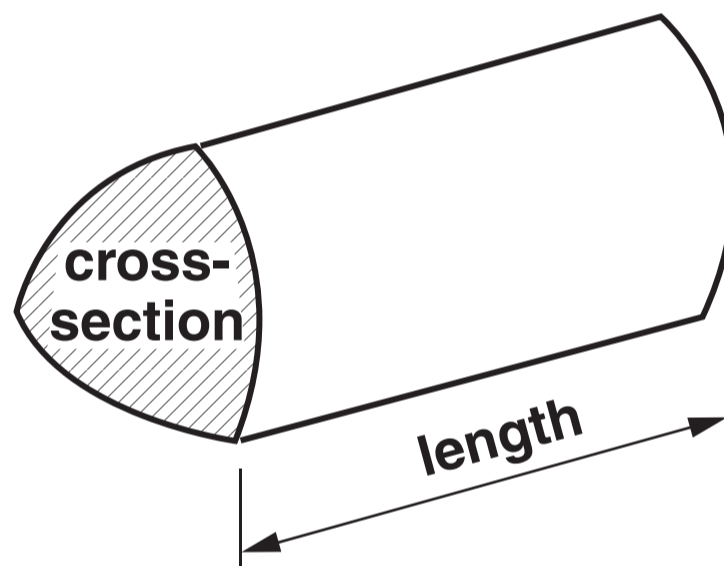
Any blank pages are indicated.

FORMULAE SHEET: FOUNDATION TIER

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



$$\text{Volume of prism} = (\text{area of cross-section}) \times \text{length}$$



Answer ALL the questions.

1 (a) $5 + 7 = 12$

Using this fact, write two different subtractions.
You can ONLY use the numbers 5, 7 and 12.

(a) - =

- =

[2]

(b) Work out.

(i) $\frac{3}{4}$ of 12

(b)(i) _____ [1]

(ii) $6 \times \frac{1}{6}$

(ii) _____ [1]

- (c) Ana has some money.
She spends half of it buying a coat.
She gives half of what is left to her mum.
Ana now has £20.**

How much money did Ana have to start with?

(c) £ _____ [2]

2 Opposite is a coordinate grid.

(a) Plot the point $(-2, 3)$. Label it A. [1]

**(b) (i) B has the same x -coordinate as A but a different y -coordinate.
Plot and label a possible point B. [1]**

(ii) Write down the coordinates of your point B.

(b)(ii) (_____ , _____) [1]

(c) C has the same y -coordinate as A but a different x -coordinate.

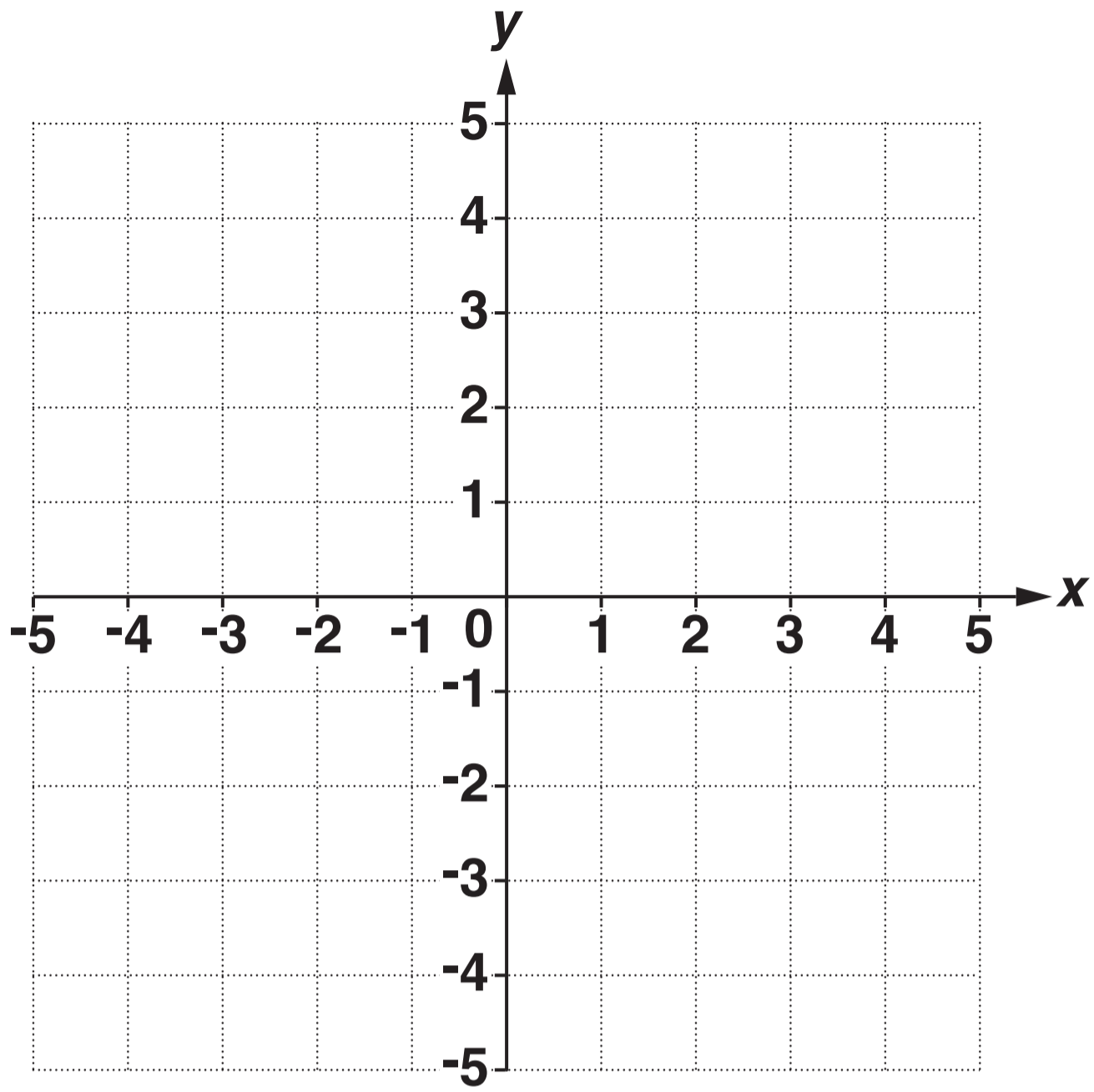
Plot and label a possible point C. [1]

(d) Join points A, B and C to make a triangle.

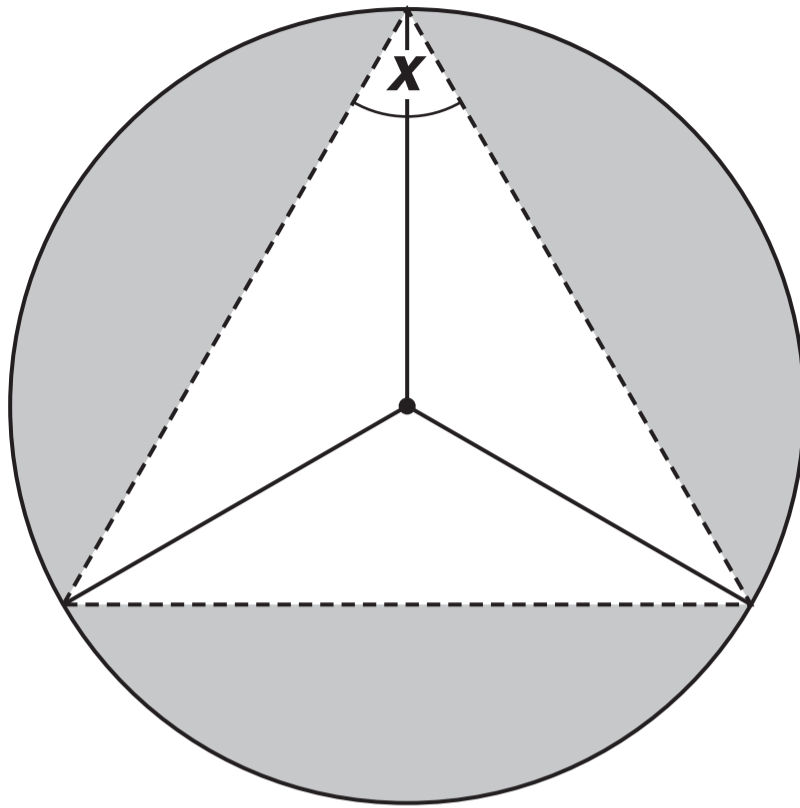
Tick the correct statement about the angles in triangle ABC.

All the angles are acute.	
All the angles are obtuse.	
One angle is a right angle.	
One angle is obtuse.	

[1]



- 3 This is a logo.
It is made by drawing three congruent triangles inside a circle.



NOT TO SCALE

- (a) From this list, choose the name for one of the **SOLID** straight lines in the logo.

Chord

Diameter

Tangent

Radius

(a) _____ [1]

(b) Work out the size of angle x.

(b) _____° [1]

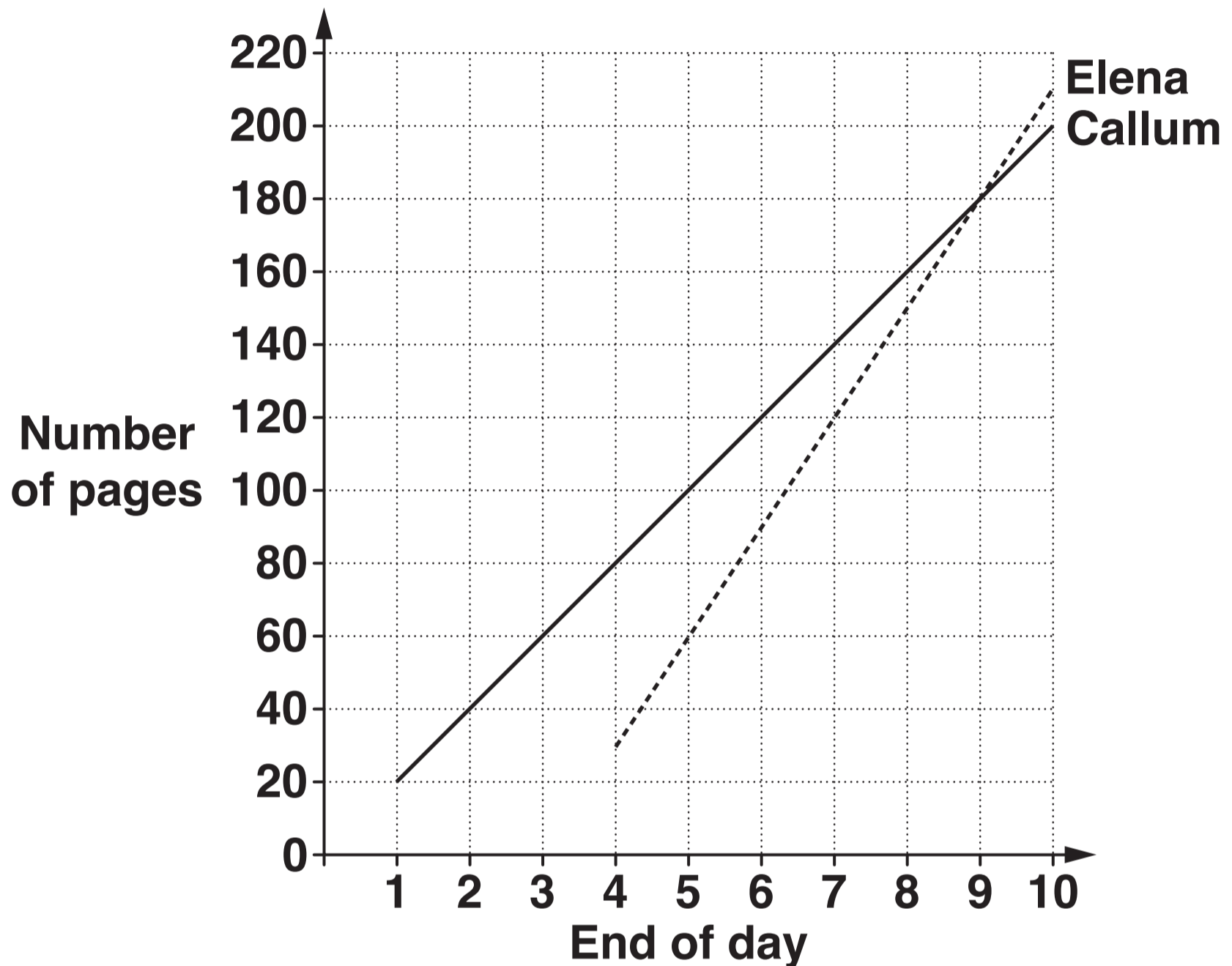
(c) Work out the size of one of the angles at the centre of the circle.

(c) _____° [2]

- 4 Callum and Elena take part in a Sponsored Read. Callum starts reading on day 1 and Elena starts reading on day 4.

They each record the overall number of pages they have read at the end of each day.

These results are shown on the graph.



- (a) (i) How many pages has Callum read by the end of day 5?

(a)(i) _____ [1]

(ii) How many pages does Callum read each day?

(ii) _____ [1]

(iii) How many MORE pages has Elena read than Callum by the end of day 10?

(iii) _____ [1]

**(b)* Callum raises £2 for every 10 pages he reads.
Elena raises 15p for every page she reads.**

At the end of day 9, Elena says

“I have raised the same amount of money as Callum”.

Is Elena correct? [4]

5 (a) Solve.

(i) $y - 1 > 7$

(a)(i) _____ [1]

(ii) $2w < 8$

(ii) _____ [1]

(b) You are given that $5 \leq x < 9$ AND that x is a whole number.

Tick the set of ALL possible values of x .

5, 8	<input type="checkbox"/>
5, 9	<input type="checkbox"/>
6, 7, 8	<input type="checkbox"/>
5, 6, 7, 8	<input type="checkbox"/>
5, 6, 7, 8, 9	<input type="checkbox"/>

[1]

6* Tariq thinks of a number.

'My number is less than 100.

It is the square of a whole number

and

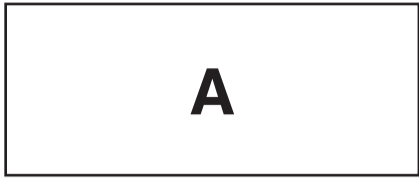
it is also 9 more than the cube of a whole number.'

Is Tariq's number even?

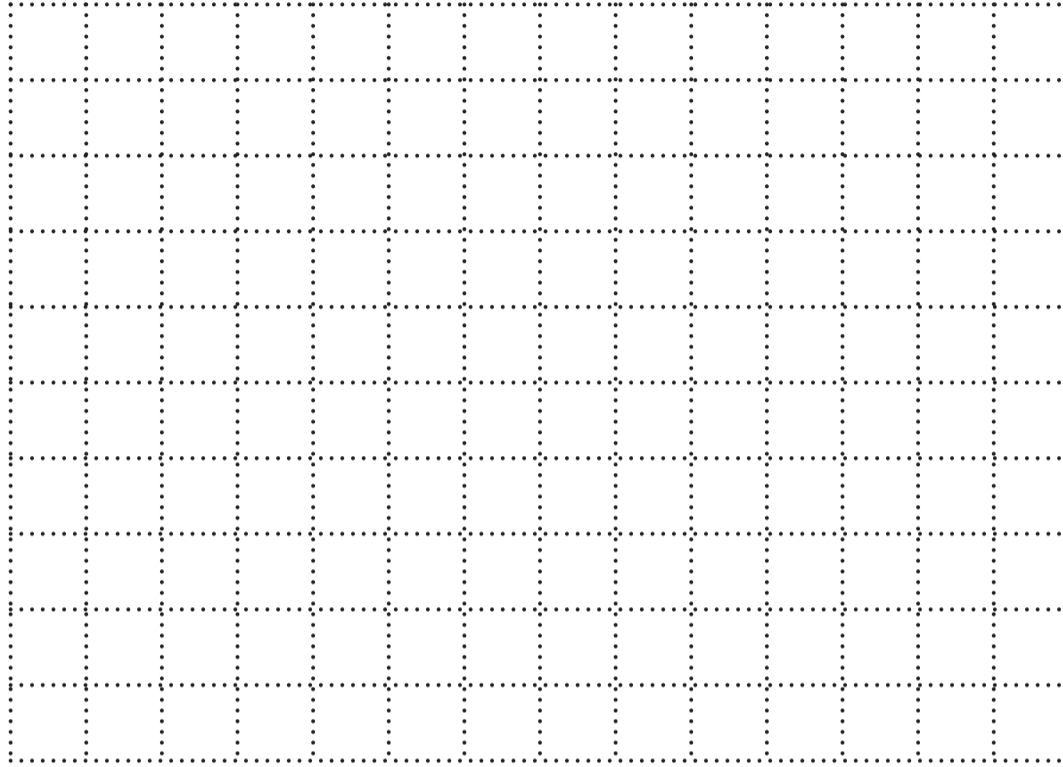
Show how you decide.

[4]

- 7 (a) Rectangle A is 4 cm long and 2 cm wide.



On the grid, draw a rectangle, B, that is NOT similar to A. All the sides of the rectangle must lie on grid lines.



[1]

- (b) Use values to explain why rectangles A and B are NOT similar.

[2]

8 (a) (i) Complete the following using a decimal.

$$\frac{27}{100} = \square$$

[1]

(ii) Complete the following using a whole number.

$$0.\dot{3} = \frac{1}{\square}$$

[1]

(b) Complete this grid.

Each row and each column is a complete calculation.
You may put a number or any of the symbols +, −, ×, ÷ in the boxes.

Each symbol may be used more than once.

	6		$1\frac{1}{4}$			
2		$2\frac{1}{2}$		2.5	=	7.5
	1.5		2.75			
1.25	+		+	5	=	10
	1					
	=		=			
	10		10			

[4]

9 Kennon discovers a water leak from the pipe supplying his house.

(a) He thinks the water has been leaking for just over 3 months.

Explain why “just over 3 months” is about 100 days.

[1]

(b) Kennon checks his water meter and finds the pipe is losing 0.2894 cubic metres of water each day.

(i) Round 0.2894 correct to 1 decimal place.

(b)(i) _____ [1]

(ii) Use your answer to part (b)(i) to show that about 30 cubic metres of water has leaked in 100 days. [1]

(c) This is how the water company charges for water.

STEP 1: Charge £1.04 for each cubic metre of water.

STEP 2: Find 91% of the number of cubic metres of water.

STEP 3: Charge £2.08 for each cubic metre of water worked out in STEP 2.

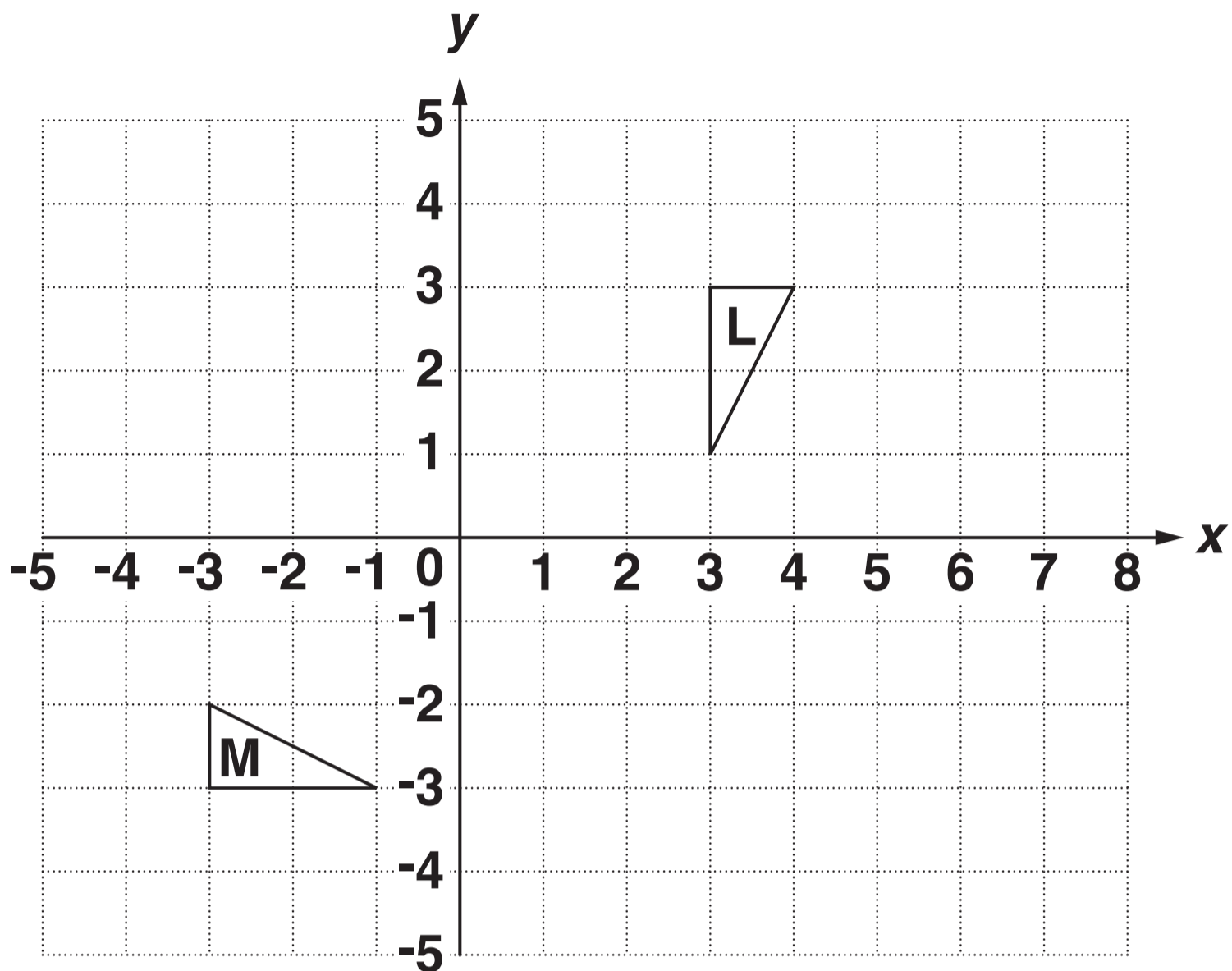
STEP 4: Add the answers from STEP 1 and STEP 3 together.

Kennon wants to estimate how much the 30 cubic metres of water has cost him.

Round each value you use correct to one significant figure and find approximately how much Kennon has paid for the water that leaked.

(c) £ _____ [5]

10 Triangles L and M are drawn on the grid below.



(a) Describe fully the SINGLE transformation that maps triangle L onto triangle M.

[3]

(b) Translate triangle L using the vector $\begin{pmatrix} 2 \\ -4 \end{pmatrix}$. Label your image T.

[2]

- (c) With the transformations in (a) and (b) both the lengths AND the angles in the image are the same as in the original shape.**

Describe what would happen to the lengths and angles in triangle L after an enlargement of scale factor 4.

[2]

11 This table shows the average price of a house in the UK every five years from 1952 to 2012.

The prices are given to the nearest £1000.

(a) Complete the time series graph on page 22 to show all the data. [2]

(b) In which 5 year period did the average house price increase the most?

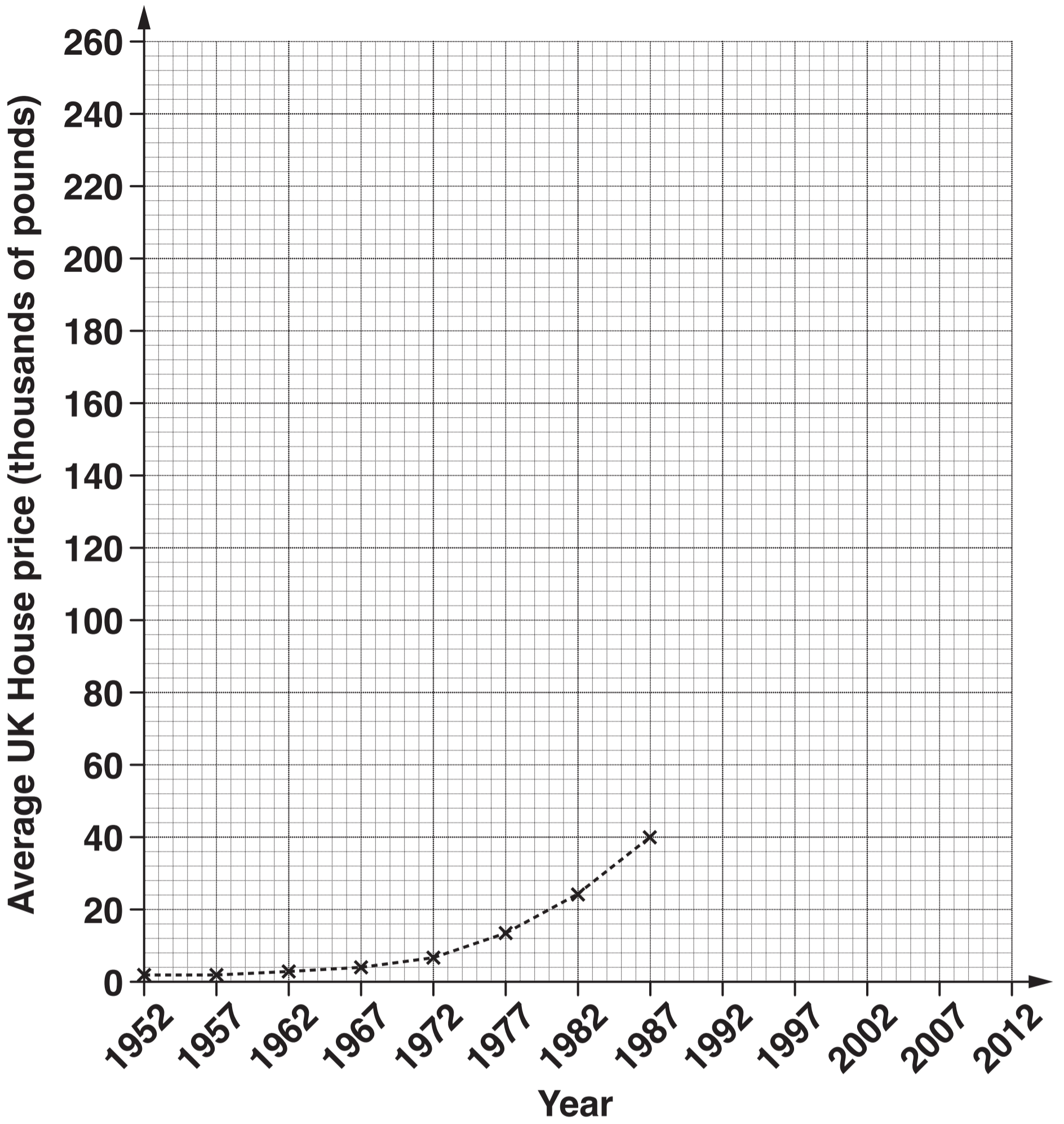
(b) from _____ to _____ [1]

(c) Helen said that house prices did not increase from 1952 to 1957.

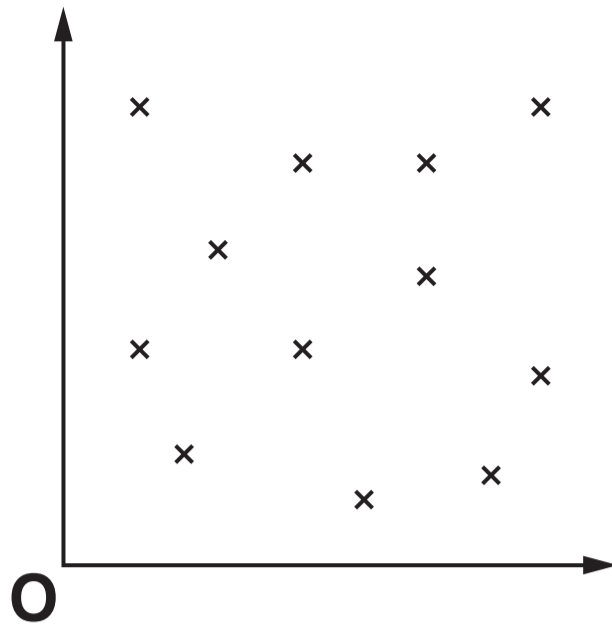
Explain why Helen might be wrong. Use figures to support your answer.

_____ [2]

Year	Price (thousands of pounds)
1952	2
1957	2
1962	3
1967	4
1972	7
1977	14
1982	24
1987	40
1992	61
1997	76
2002	128
2007	223
2012	246

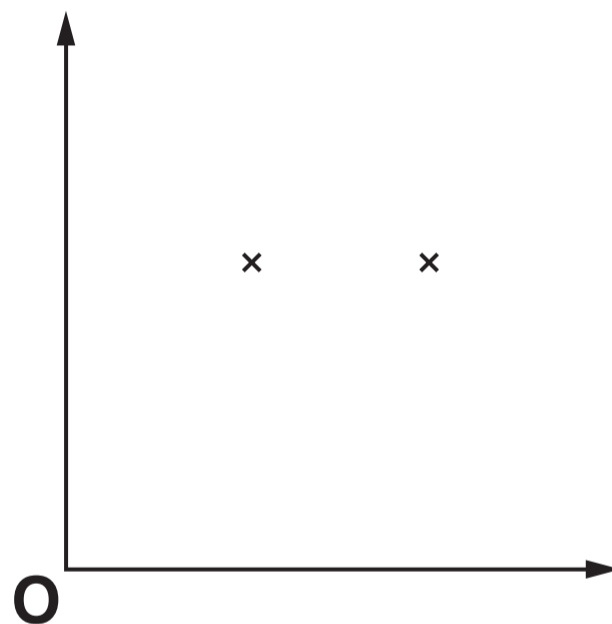


12 (a) Complete the statement about this diagram.



The diagram shows _____ correlation. [1]

(b) Mark at least 8 more points on this diagram to show negative correlation.



[1]

END OF QUESTION PAPER

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