

**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**

<b>Candidate forename</b>		<b>Candidate surname</b>	
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<b>Centre number</b>						<b>Candidate number</b>				
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**Candidates answer on the Question Paper.**

**OCR SUPPLIED MATERIALS:**

**Insert for Question 11**

**OTHER MATERIALS REQUIRED:**

**Geometrical instruments**

**Tracing paper (optional)**

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

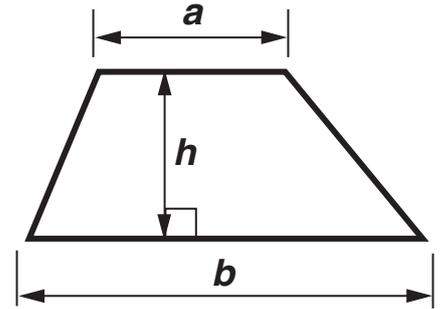
**Your quality of written communication is assessed in questions marked with an asterisk (\*).**

**The total number of marks for this paper is 60.**

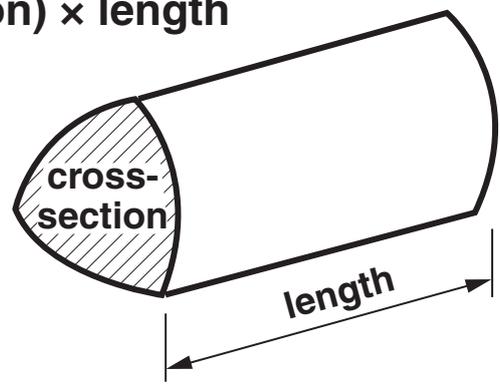
**Any blank pages are indicated.**

## 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)  $5 + 7 = 12$

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

(a)  $\square - \square = \square$

$\square - \square = \square$

[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.**

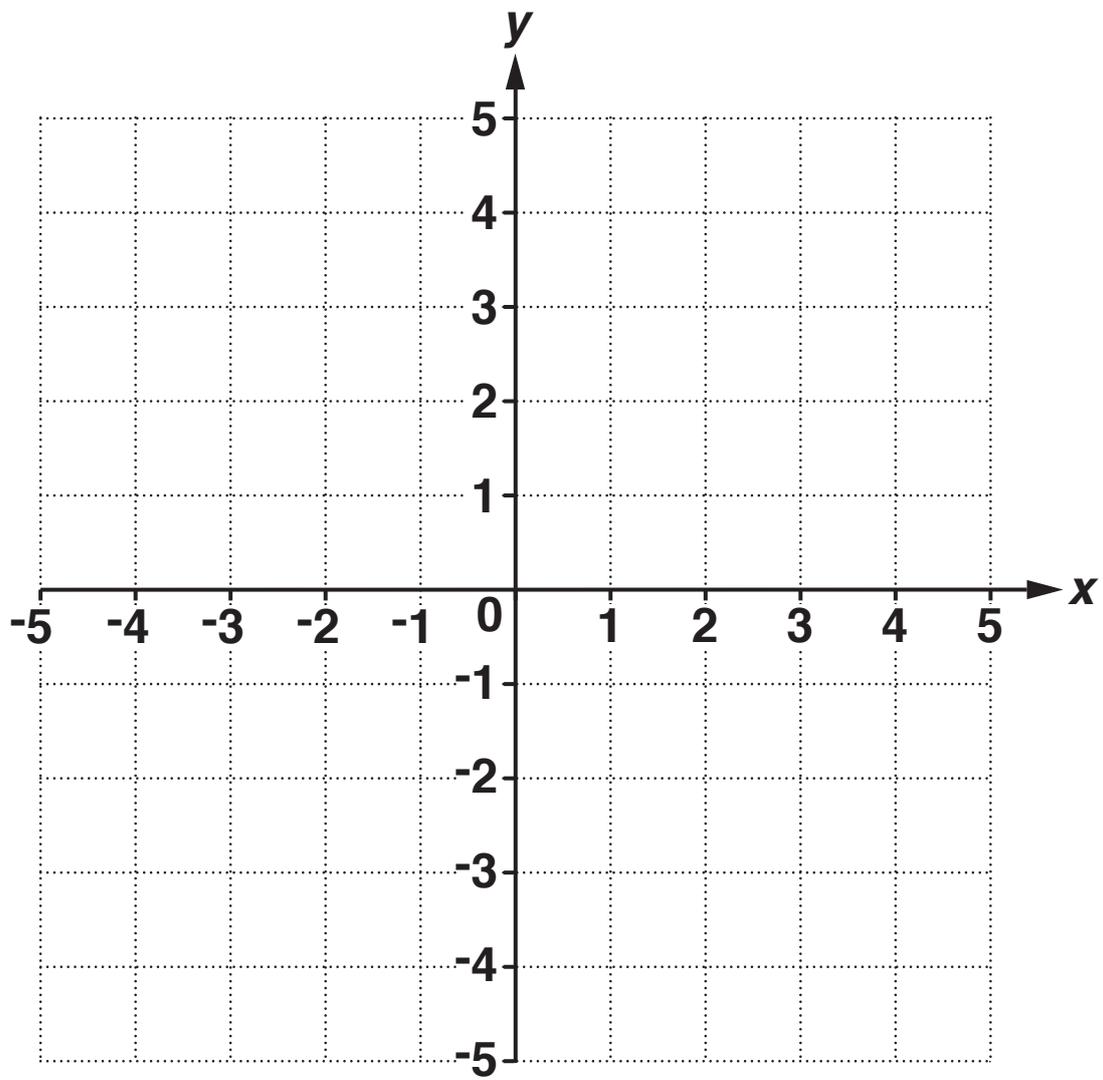
**Plot and label a possible point C. [1]**

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

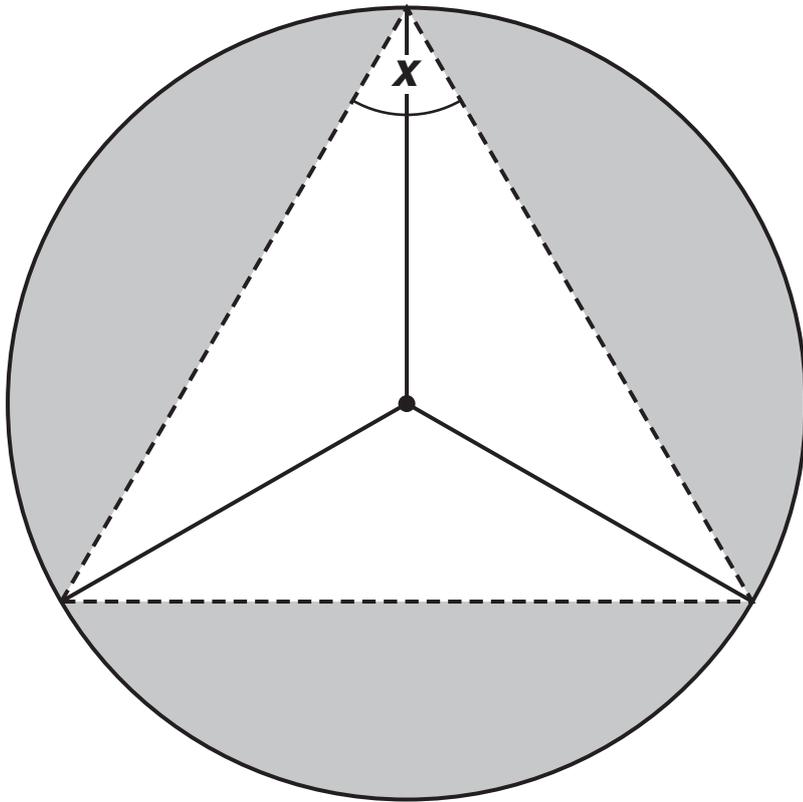
**Tick the correct statement about the angles in triangle ABC.**

<b>All the angles are acute.</b>	<input type="checkbox"/>
<b>All the angles are obtuse.</b>	<input type="checkbox"/>
<b>One angle is a right angle.</b>	<input type="checkbox"/>
<b>One angle is obtuse.</b>	<input type="checkbox"/>

**[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]**

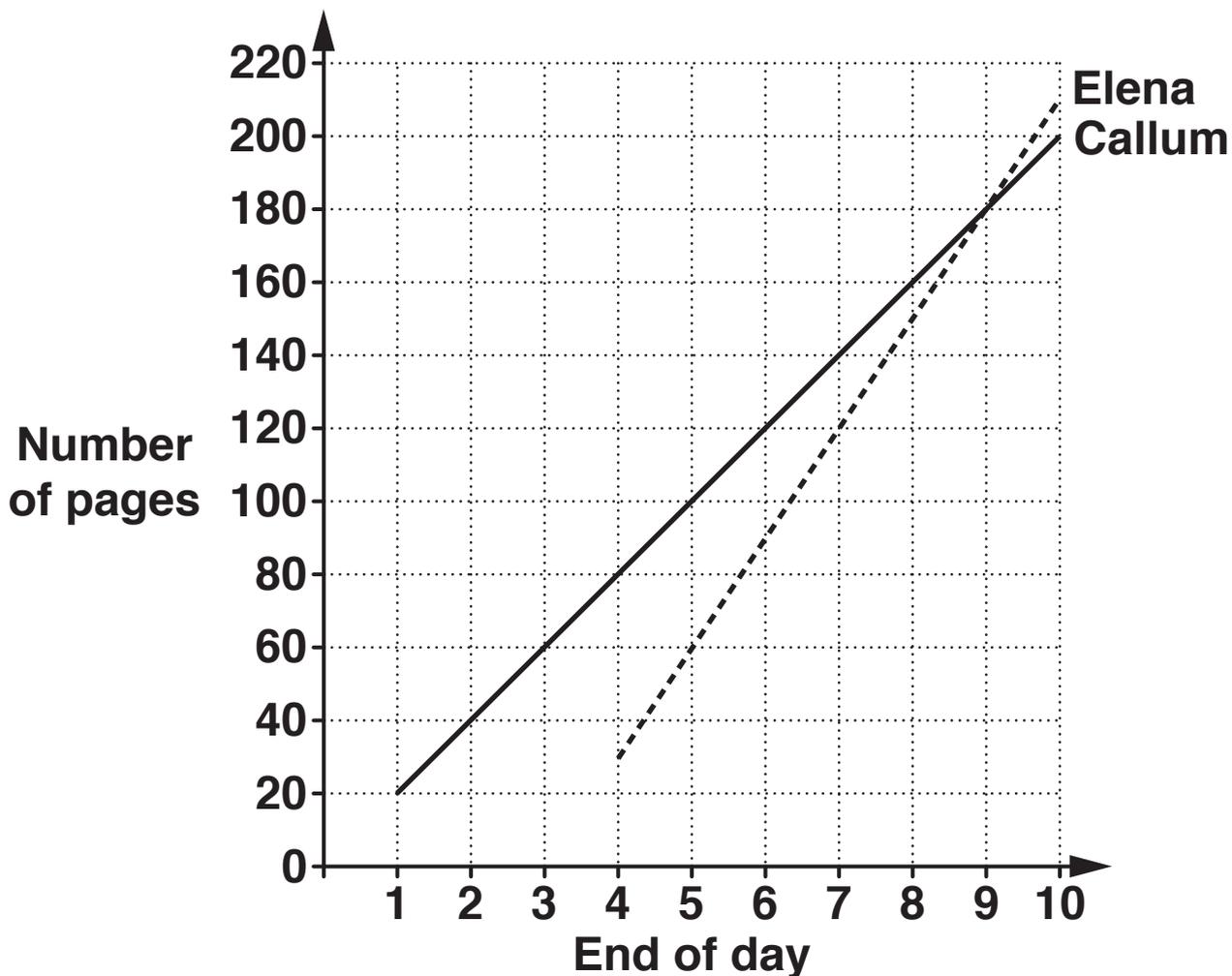
**(c) Work out the size of one of the angles at the centre of the circle.**

**(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	
5, 9	
6, 7, 8	
5, 6, 7, 8	
5, 6, 7, 8, 9	

[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?**

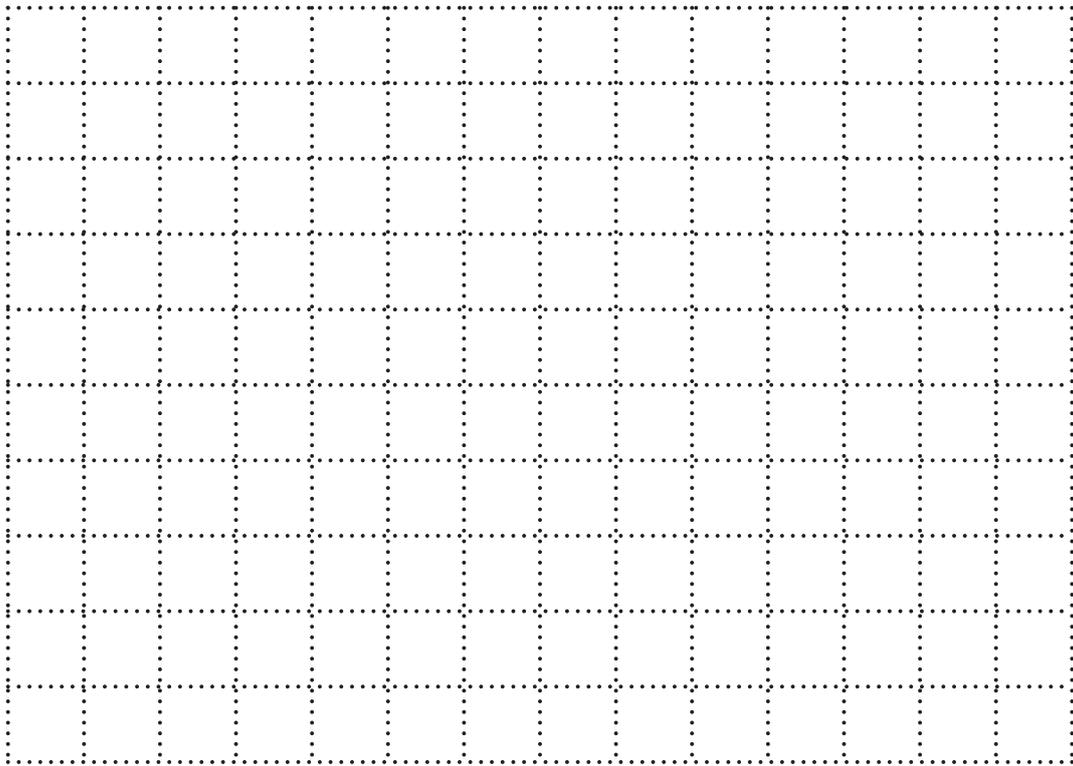
**Show how you decide.**

**[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.

$$\frac{27}{100} = \boxed{\phantom{000}} \quad [1]$$

(ii) Complete the following using a whole number.

$$0.\dot{3} = \frac{1}{\boxed{\phantom{00}}} \quad [1]$$

(b) Complete this grid.

Each row and each column is a complete calculation.

You may put a number or any of the symbols  $+$ ,  $-$ ,  $\times$ ,  $\div$  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]

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**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.**

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[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.**

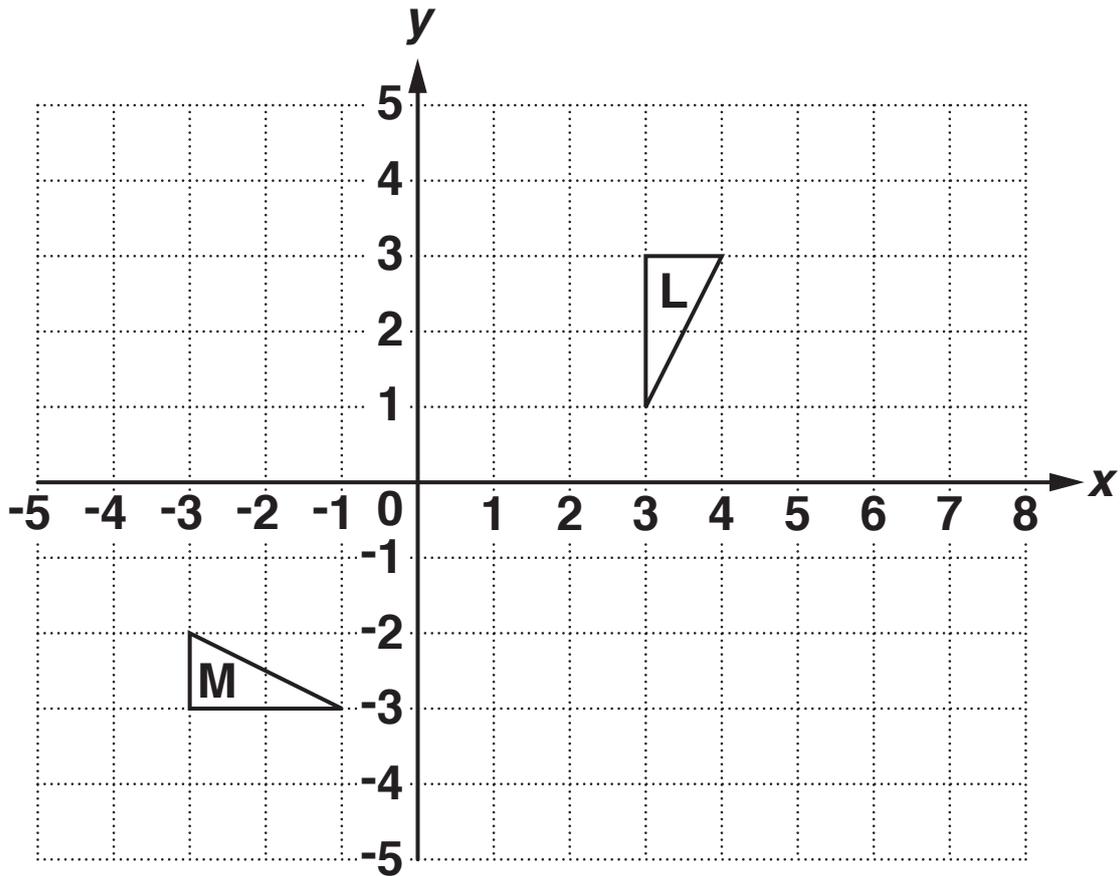
**STEP 4: Add the answers from STEP 1 and STEP 3 together.**

**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.**

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**[2]**

**11 The table on the insert 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 the insert to show all the data. [2]**

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

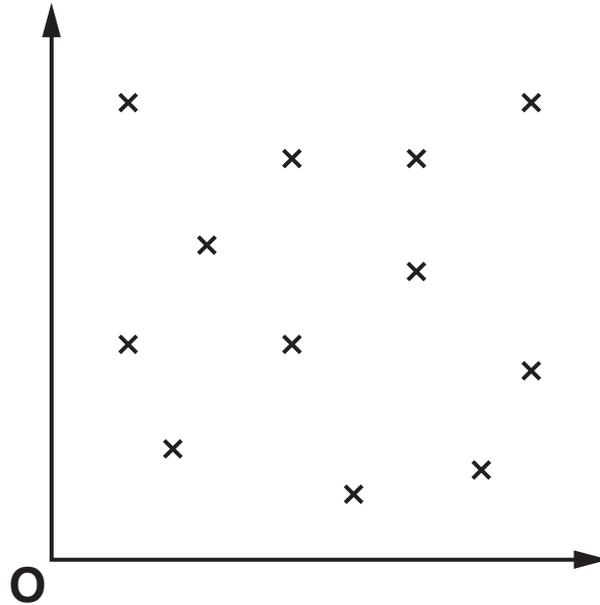
**(b) from \_\_\_\_\_ to \_\_\_\_\_ [1]**

**(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]

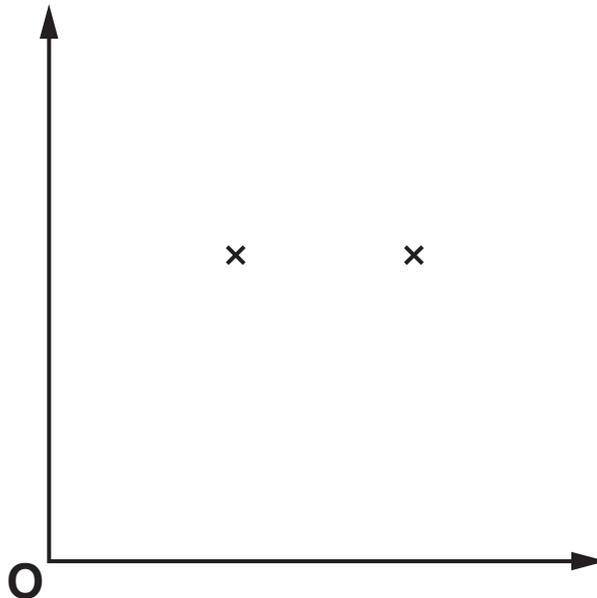
12 (a) Complete the statement about this diagram.



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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