

Surname					Other Names				
Centre Number					Candidate Number				
Candidate Signature									

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General Certificate of Secondary Education
June 2003



MATHEMATICS (MODULAR) (SPECIFICATION B) 33005/F1
Module 5 Foundation Tier
Paper 1 Non-Calculator

F

Wednesday 4 June 2003 1.30 pm to 2.30 pm

<p>In addition to this paper you will require: mathematical instruments. You must not use a calculator.</p>	
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For Examiner's Use	
Pages	Mark
3	
4 – 5	
6 – 7	
8 – 9	
10 – 11	
12 – 13	
14 – 15	
16	
TOTAL	
Examiner's Initials	

Time allowed: 1 hour

Instructions

- Use blue or black ink or ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions in the spaces provided.
- Do all rough work in this booklet.

Information

- The maximum mark for this paper is 60.
- Mark allocations are shown in brackets.
- Additional answer paper, graph paper and tracing paper will be issued on request and must be tagged securely to this answer booklet.

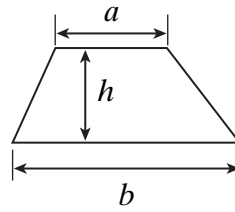
Advice

- In all calculations, show clearly how you work out your answer.

Formula Sheet: Foundation Tier

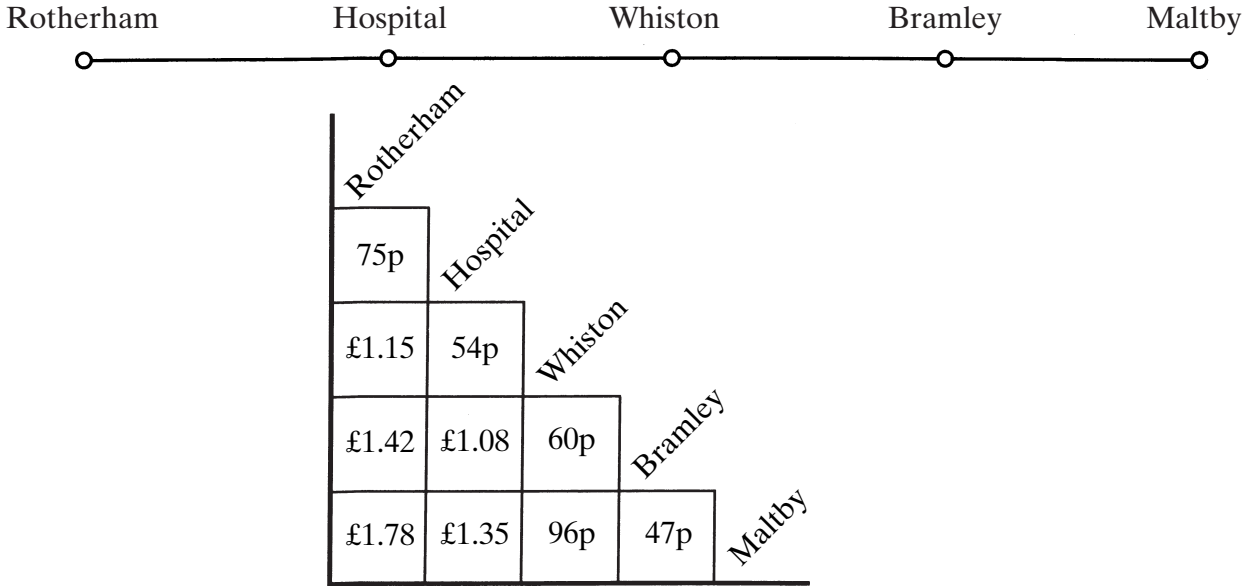
You may need to use the following formula:

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



Answer **all** questions in the spaces provided.

1 Here is a bus route and a fares table.



(a) How much is the bus fare from the Hospital to Maltby?

Answer £ (1 mark)

(b) Jon travels to Rotherham from Bramley.
He pays with a £5 note.

How much change does he receive?

.....

Answer £ (2 marks)

(c) A child pays 35p for any journey.

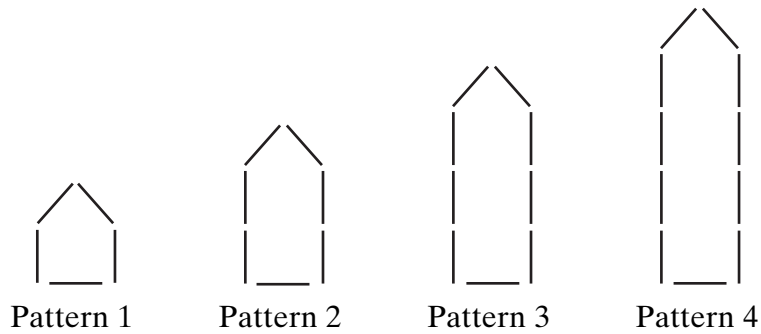
What is the total cost for an adult and two children to travel from Bramley to Maltby?

.....

Answer £ (2 marks)

Turn over ▶

2 Patterns are made of sticks.



(a) Complete the table for Pattern 4.

Pattern number	1	2	3	4
Number of sticks	5	7	9	

(1 mark)

(b) Sketch Pattern 5.

(1 mark)

(c) Which pattern will have 25 sticks?

.....

.....

Answer *(2 marks)*

(d) Here is the rule for working out the number of sticks.

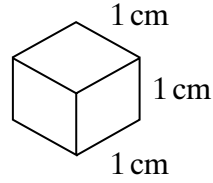
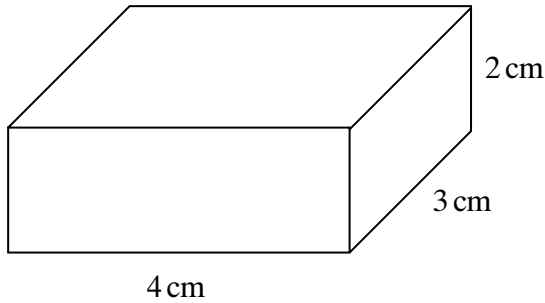
Multiply pattern number by 2 and add 3

How many sticks will be in Pattern 100?

.....

Answer *(1 mark)*

- 3 A rectangular box has length 4 cm, width 3 cm and height 2 cm.
The box is to be filled with centimetre cubes.



Not to scale

- (a) How many centimetre cubes are needed to fill the box?

.....
.....

Answer cubes (2 marks)

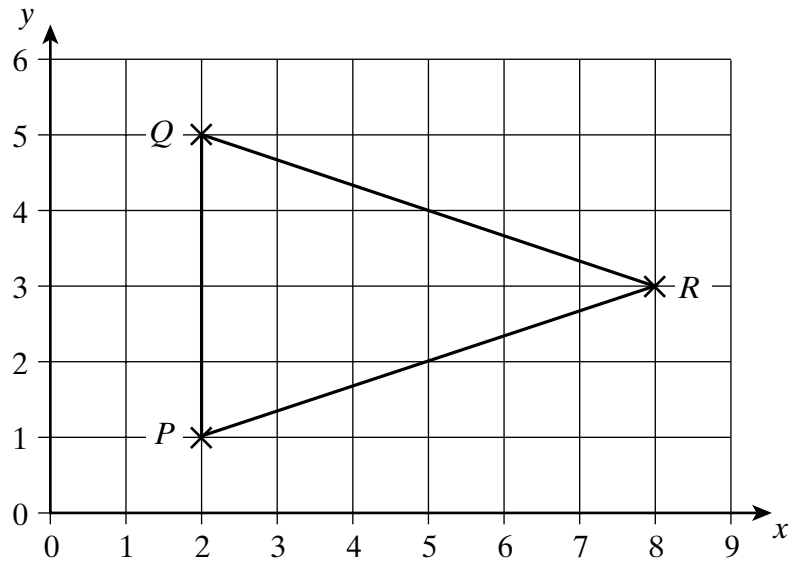
- (b) Write down the volume of the box.

Answer (1 mark)

TURN OVER FOR THE NEXT QUESTION

Turn over ►

- 4 The points P , Q and R are plotted on the grid to form a triangle.



- (a) What is the mathematical name given to triangle PQR ?

Answer (1 mark)

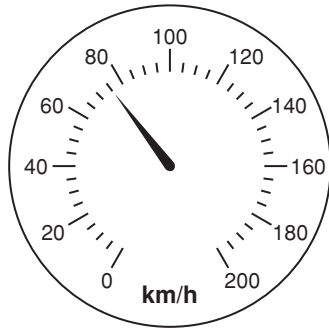
- (b) (i) Mark the mid-point of PQ on the grid.
Label it M .

(1 mark)

- (ii) Write down the coordinates of M .

Answer (.....,) (1 mark)

- 5 A speed limit in France is 100 kilometres per hour.
The speedometer shows the speed of a lorry.

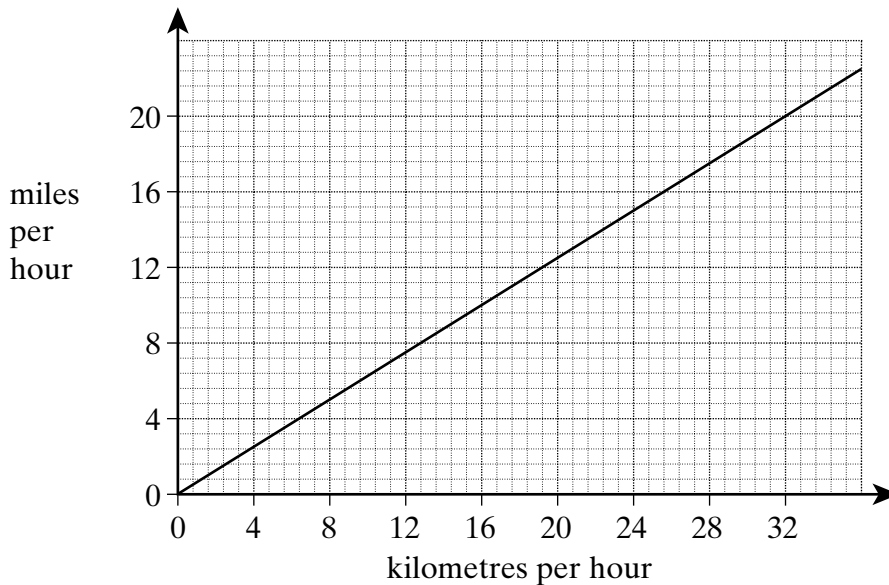


- (a) How much slower than the speed limit is the lorry travelling?

.....
.....

Answer km/h (2 marks)

- (b) (i) Use the graph to convert 32 kilometres per hour into miles per hour.



Answer miles per hour (1 mark)

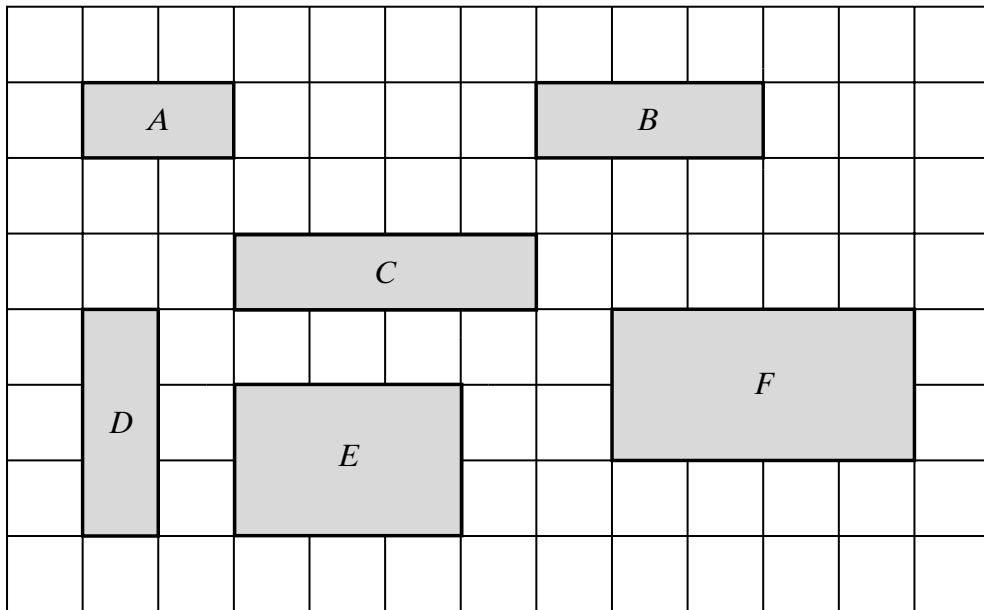
- (ii) Convert 96 kilometres per hour into miles per hour.

.....
.....

Answer miles per hour (2 marks)

Turn over ▶

6 (a) Here are six rectangles on a centimetre grid.



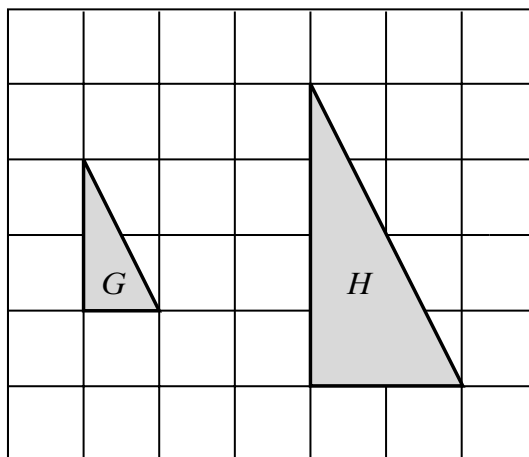
(i) Which two rectangles are congruent?

Answer and (1 mark)

(ii) Which two rectangles are similar?

Answer and (1 mark)

(b) Triangle *H* is an enlargement of triangle *G*.



State the scale factor of the enlargement.

Answer (1 mark)

7 (a) Here is a list of angles.

8° 42° 90° 97° 132° 205° 281° 333°

From the list, write down an angle which is

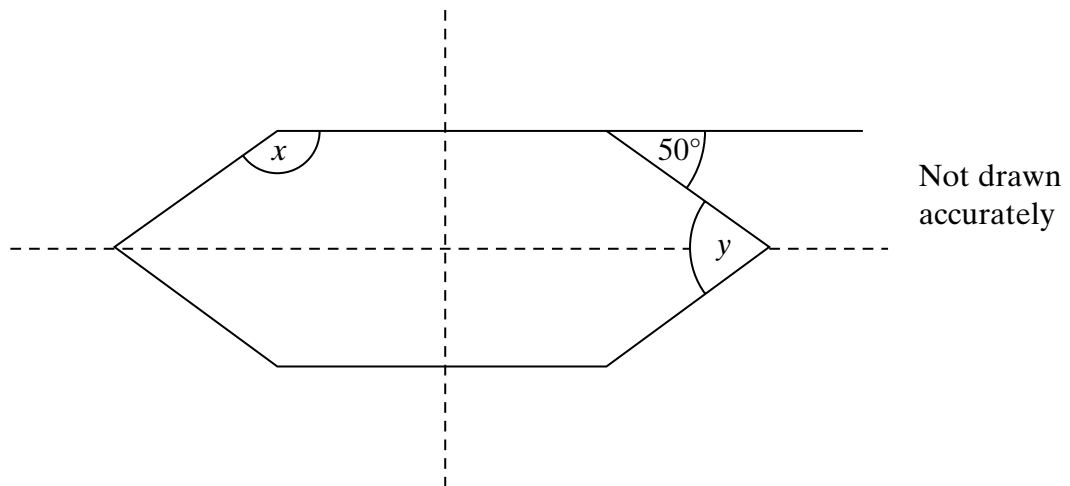
(i) obtuse,

Answer degrees (1 mark)

(ii) reflex.

Answer degrees (1 mark)

(b) The diagram shows a hexagon.
The hexagon has two lines of symmetry as shown.



(i) Work out the value of x .

.....

Answer degrees (1 mark)

(ii) Work out the value of y .

.....

Answer degrees (2 marks)

Turn over ►

8 A printing machine prints 8 pages per minute.

(a) How long will it take to print 1000 pages?
Give your answer in hours and minutes.

.....
.....
.....
.....

Answer hours minutes (3 marks)

(b) A new machine prints 25% more pages per minute.

How many pages will the new machine print in 1 hour?

.....
.....
.....
.....

Answer pages (3 marks)

9 (a) Write down the square root of 49.

.....

Answer (1 mark)

(b) Work out the value of 10^4

.....

Answer (1 mark)

10 (a) Find the value of $3x + 4y$

(i) when $x = 2$ and $y = 5$

.....
.....

Answer (2 marks)

(ii) when $x = 6$ and $y = -3$

.....
.....

Answer (2 marks)

(b) Find the value of $a^3 + b^2$ when $a = 2$ and $b = 5$

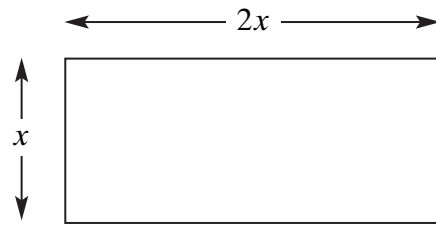
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Answer (2 marks)

TURN OVER FOR THE NEXT QUESTION

Turn over 

- 11 The length of a rectangle is twice its width.



Not to scale

The area of the rectangle is 50 cm^2 .

- (a) Show that the length of the rectangle is 10 cm.

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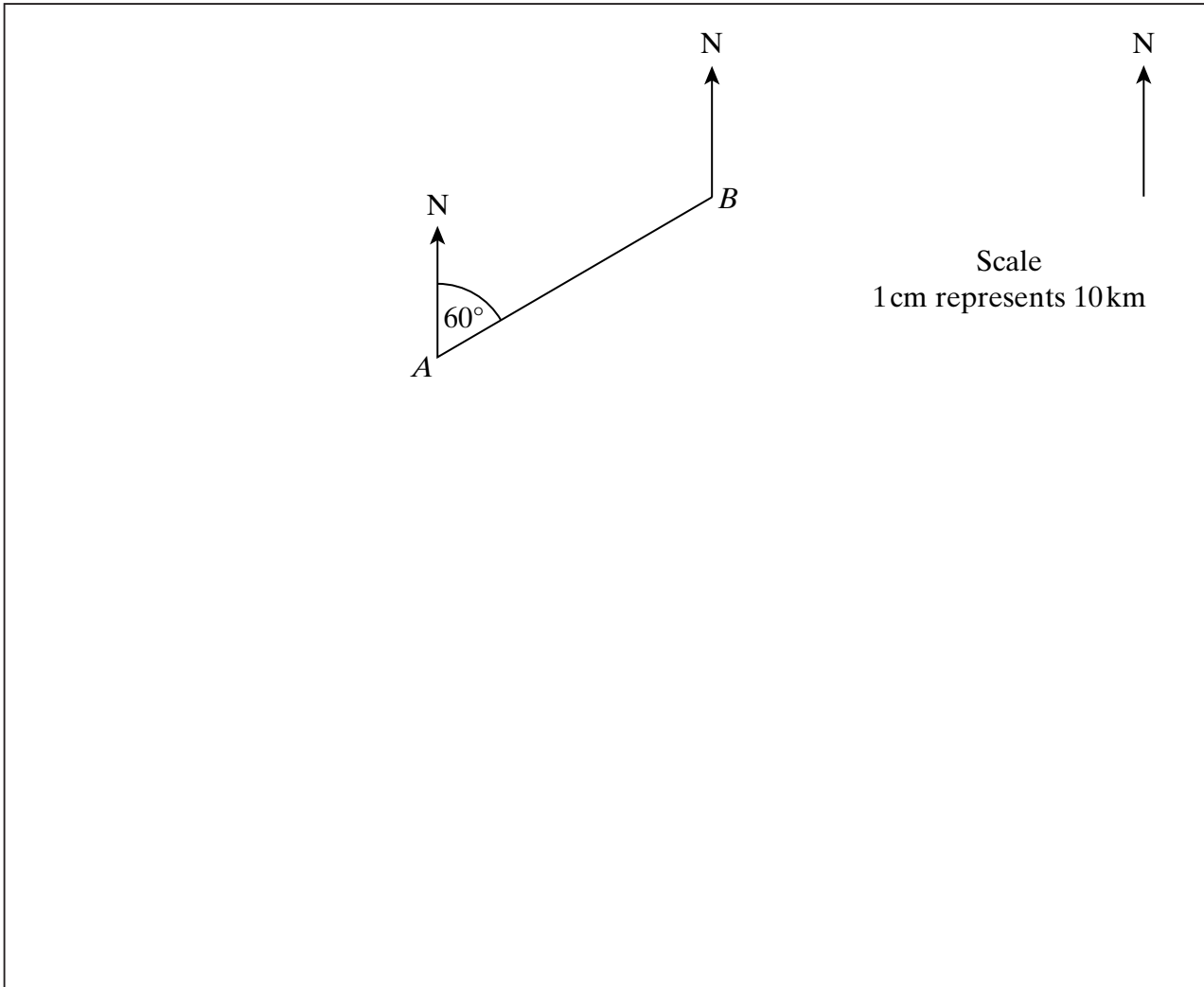
 (1 mark)

- (b) Work out the perimeter of the rectangle.

.....

 Answer cm (1 mark)

- 12** The diagram shows the positions of *A* and *B*.
The diagram is drawn to scale.
1 cm represents 10 km.



- (a) Use the diagram to calculate the actual distance of *B* from *A*.

.....
.....

Answer km (2 marks)

- (b) *C* is due south of *B*.

- (i) Write down the three figure bearing of *C* from *B*.

Answer ° (1 mark)

- (ii) *C* is also on a bearing of 150° from *A*.

Mark the position of *C* on the diagram.

(2 marks)

Turn over ►

7

13 (a) Paul thinks that when an even number is halved the answer is always even.

Give an example to show that Paul is wrong.

.....
.....

(1 mark)

(b) p is an odd number.

Is $2p + 1$ an odd number, an even number or could it be either?

Tick the correct box.

odd

even

either

(1 mark)

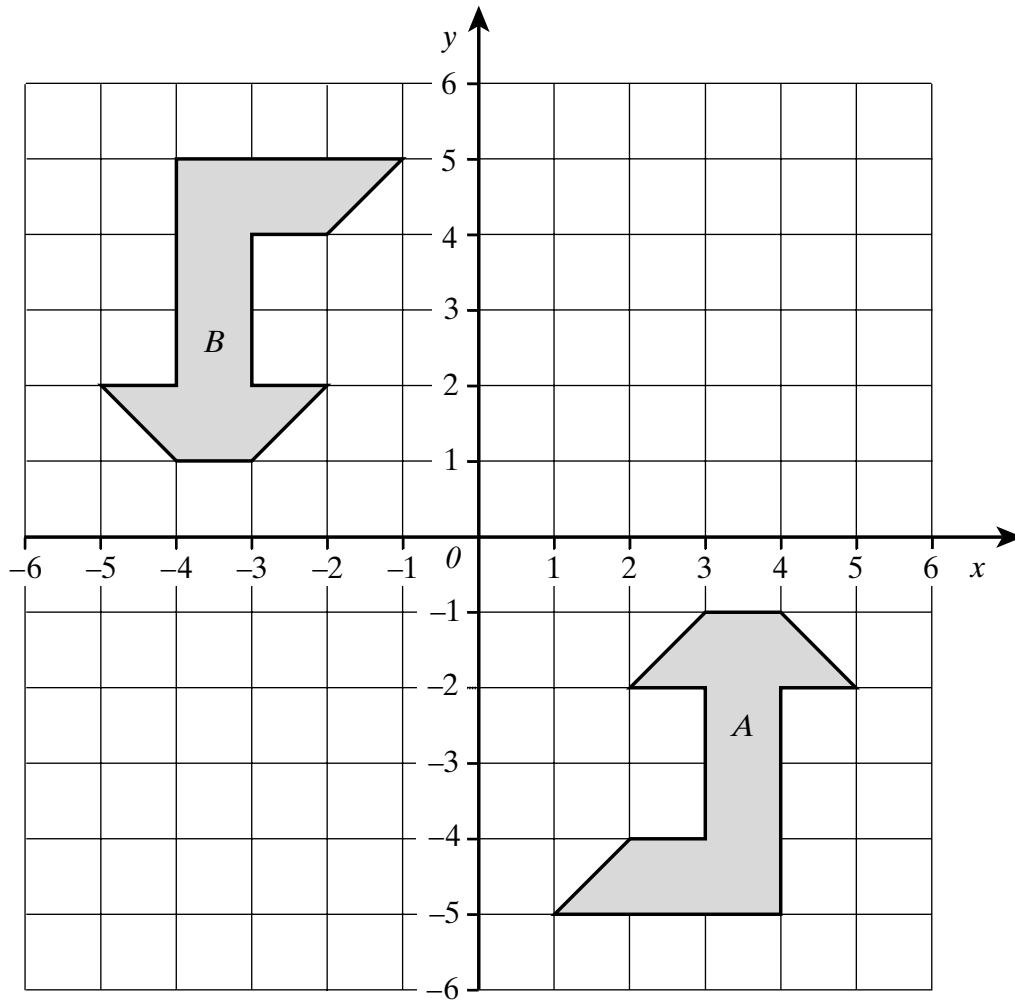
14 In a test Adam scored 10 more marks than Rachael.
Altogether they scored 62 marks.

Find Adam's score.

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.....
.....
.....
.....

Answer marks (3 marks)

15 The diagram shows two identical shapes A and B .



Describe fully the **single** transformation which takes shape A to shape B .

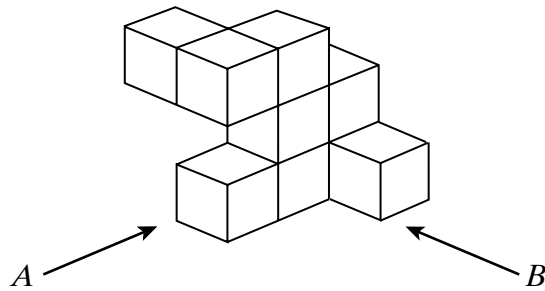
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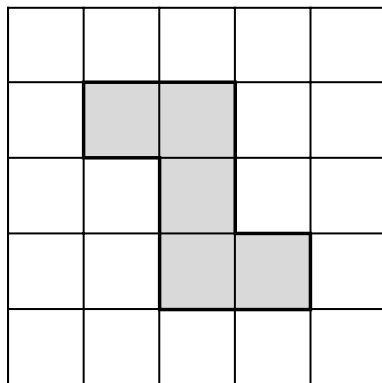
(3 marks)

Turn over ►

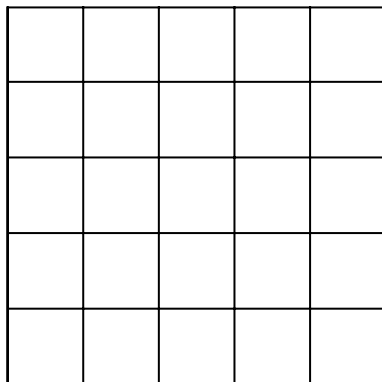
16 The diagram represents a solid made from 9 small cubes.



The view of the solid from direction *A* is shown below.



On the grid below, draw the view of the solid from direction *B*.



(2 marks)

END OF QUESTIONS