Surname		Other Names	
Centre Number		Candidate Number	
Candidate Signature			

General Certificate of Secondary Education
June 2003

MATHEMATICS (SPECIFICATION A)   3301/1F
Foundation Tier
Paper 1 Non-Calculator

Wednesday 4 June 2003 1.30 pm to 3.00 pm

F

In addition to this paper you will require:
   mathematical instruments.
You must **not** use a calculator.

Time allowed: 1 hour 30 minutes

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 100.
- 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.
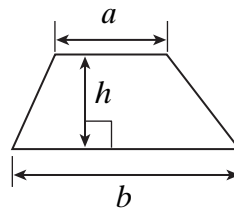- The use of a calculator is **not** permitted.

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   The number of spectators at a football match is 12 584.

(a)   Write the number 12 584 in words.

Answer ....

....

(1 mark)

(b)   In the number 12 584, write down the value of

   (i)   the figure 8,

Answer ....

(ii)   the figure 2.

Answer ....   *(2 marks)*

(c)   One quarter of all the spectators are season ticket holders.
How many spectators are season ticket holders?

....

....

Answer ....   *(2 marks)*

(d)   Write 12 584 to the nearest 100.

Answer ....   *(1 mark)*

Turn over ▶

2 Here is a list of numbers

<div align="center">

6   8   11   15   25   28   30   33

</div>

From this list, write down

(a) a multiple of 7,

Answer .... *(1 mark)*

(b) the two factors of 24,

Answer .... *(2 marks)*

(c) a square number,

Answer .... *(1 mark)*

(d) a prime number.

Answer .... *(1 mark)*

3 The diagram shows some kitchen scales.
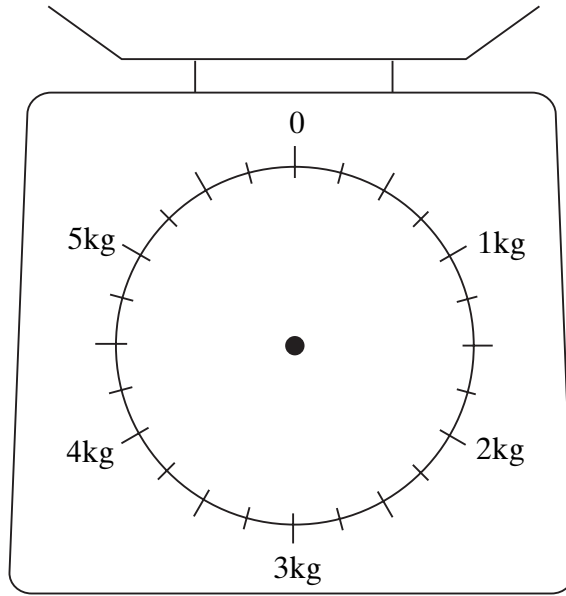
(a) Mrs Hall weighs a chicken on the scales.
The chicken weighs $3\frac{1}{2}$ kilograms.

(i) Draw an arrow on the diagram to show $3\frac{1}{2}$ kilograms. *(1 mark)*

(ii) Change $3\frac{1}{2}$ kilograms into pounds.
Give your answer to the nearest pound.

....

....

Answer ....pounds   *(2 marks)*

(b) Mrs Hall's recipe book states:

> **"To cook a chicken: allow 20 minutes per pound and add 30 minutes."**

How long does it take to cook a chicken that weighs five pounds?
Give your answer in hours and minutes.

....

....

....

....

Answer .... hours ....minutes   *(3 marks)*

Turn over ▶

11

4 Here is a list of words that are connected with circles.

centre   radius   chord   diameter   circumference   tangent

Label the four boxes on this diagram, by choosing the correct word from the list.
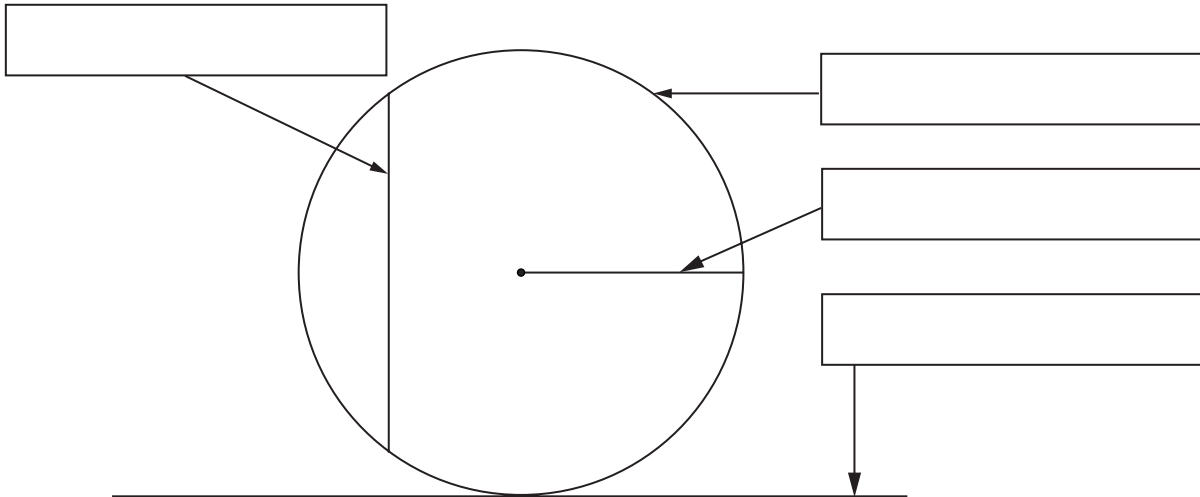
(4 marks)

5   The diagram shows a five-sided shape.
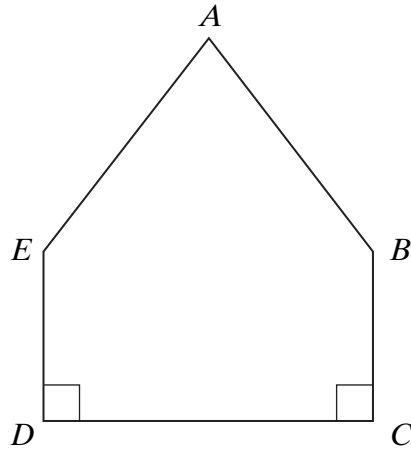
(a)   What name is given to a five-sided shape?

Answer ....   *(1 mark)*

(b)   Mark, with an X, an obtuse angle on the diagram.   *(1 mark)*

(c)   Which line is parallel to *BC*?

Answer ....   *(1 mark)*

(d)   Which line is perpendicular to *BC*?

Answer ....   *(1 mark)*

TURN OVER FOR THE NEXT QUESTION

Turn over ▶

6 This table shows the results of five football teams after they have each played ten games.

Team	Games played	Games won	Games drawn	Games lost
Arsenal	10	4	1	5
Chelsea	10	3	5	2
Fulham	10	4	3	3
Tottenham	10	3	4	3
West Ham	10	2	6	2

Three points are awarded for each game won.

One point is awarded for each game drawn.

No points are awarded for each game lost.

Which team has the most points?

You **must** show all your working.

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Answer .... *(4 marks)*

7 A company uses this formula to find the cost, in pounds, to hire out a car.

Cost = 25 × number of days hired + 20

(a) Calculate the cost of hiring a car for

(i) two days,

....

....

Answer £... *(2 marks)*

(ii) one week.

....

....

Answer £... *(2 marks)*

(b) Linda hires a car for her holiday.
She pays the company £270.
For how many days does she hire the car?

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....

Answer .... days *(2 marks)*

TURN OVER FOR THE NEXT QUESTION

8 The diagram shows the minimum and maximum temperature, in °C, for one day in June in five cities.
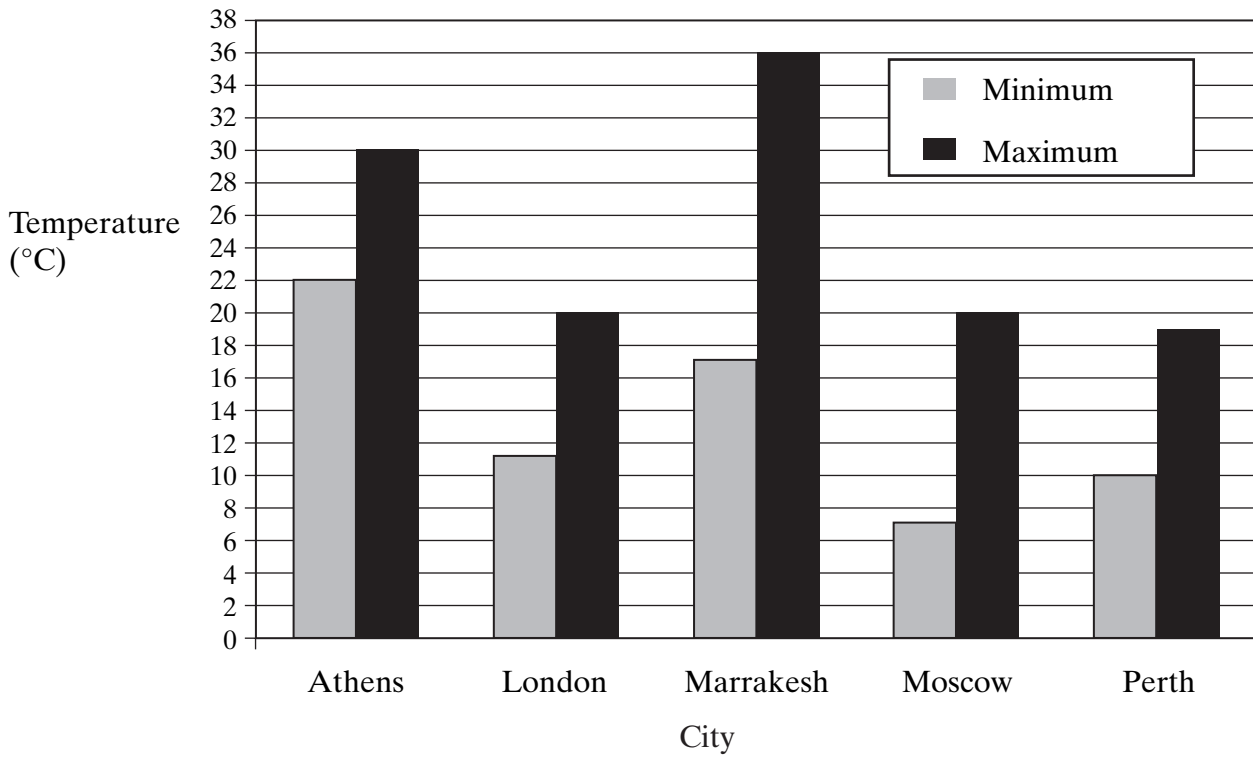
(a) Which two cities have the same **maximum** temperature?

Answer .... *(1 mark)*

(b) Work out the difference between the minimum and maximum temperature in

(i) Athens,

....

Answer .... °C

(ii) Perth.

....

Answer .... °C *(2 marks)*

(c) Mike says the minimum temperature is always about half the maximum temperature for each city.
Give an example to show that Mike is wrong.
Give a reason for your choice.

....

....

....

....

....

(2 marks)

9 In the space below, make an accurate drawing of this triangle.
The base line has been drawn for you.

6.5 cm

Not drawn accurately

43°

10 cm

10 cm

(2 marks)

7

Turn over ▶

APW/6K03/3301/1F
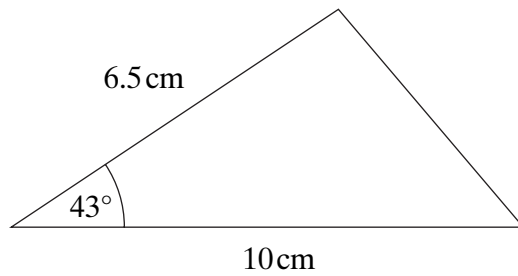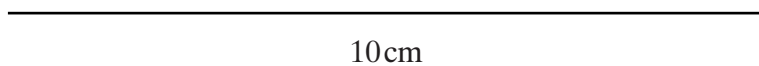
10 (a)   What fraction of this shape is shaded?
Give your answer in its simplest form.

....
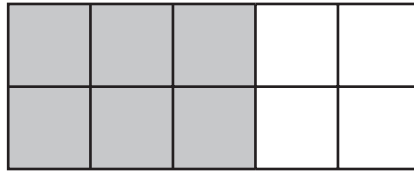
Answer .... *(2 marks)*

(b)   Find $\frac{7}{10}$ of £50

....

....

Answer   £ .... *(2 marks)*

(c)   Find 30% of 200 metres.

....

....

Answer ....metres *(2 marks)*

(d)   Work out $\frac{1}{2}$ + $\frac{1}{5}$

....

....

....

Answer .... *(2 marks)*

11 In a raffle 200 tickets are sold.
There is only one prize.
Mr Key buys 10 tickets.
Mrs Key buys 6 tickets.
Their children, Robert and Rachel, buy 2 tickets each.

(a) Which member of the family has the best chance of winning the prize?
Give a reason for your answer.

....

....

(2 marks)

(b) What is the probability that Mrs Key wins the prize?

....

Answer .... *(2 marks)*

(c) What is the probability that **none** of the family wins the prize?

....

....

Answer .... *(3 marks)*

TURN OVER FOR THE NEXT QUESTION

12 A youth club hires a disco for £70.
Tickets for the disco cost 80p each.
They sell 140 tickets.

<div style="text-align:center; border:1px solid black;">

**Friday night
DISCO
Tickets 80p**

</div>

How much profit does the youth club make?

....

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....

....

....

Answer   £ ....   *(3 marks)*

13 Magazines are stored in piles of 100.
Each magazine is 0.4 cm thick.
Calculate the height of one pile of magazines.

....

....

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....

Answer ....cm   *(2 marks)*

14 The parallelogram *ABCD* is drawn on a centimetre square grid.
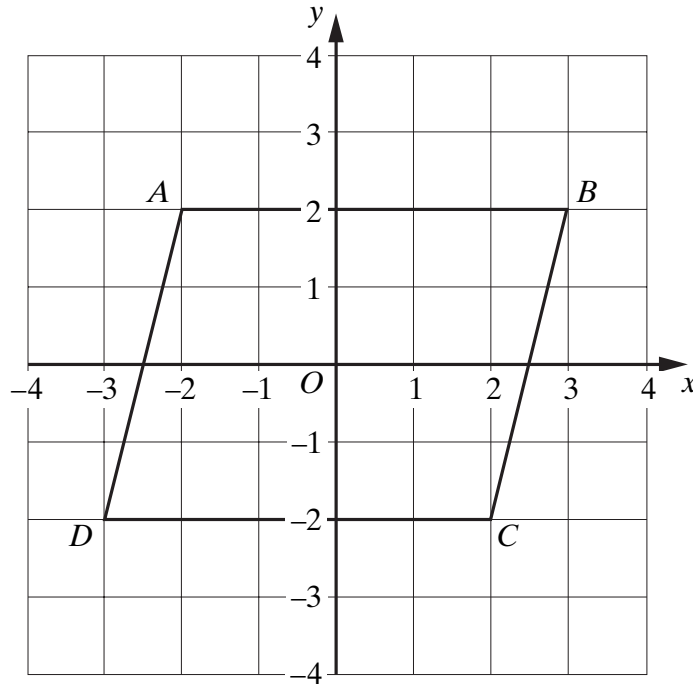
(a) The coordinates of *A* are (–2, 2).

Write down the coordinates of *B*, *C* and *D*.

Answer *B* (................. , ...)

C (................. , ...)

D (................. , ...)   *(2 marks)*

(b) Emma says that the perimeter of the parallelogram is more than 18 cm.
Explain why Emma is correct.

....

....

....

....
(1 mark)

(c) Calculate the area of the parallelogram.

....

....

....

Answer ....cm^2 *(2 marks)*

Turn over ▶

10

15 The stem and leaf diagram shows the ages, in years, of 15 members of a badminton club.

| Key: | **2** | 7 | means an age of 27 years |

2	7	8			
3	0	2	4	8	
4	1	2	3	3	4	6
5	3	6			
6	2				
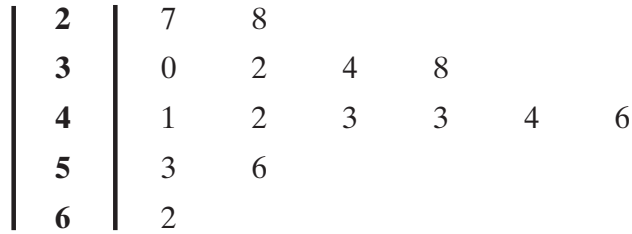
(a) How many members are aged over 40?

Answer .... *(1 mark)*

(b) What is the median age of the members?

....

Answer ....years *(1 mark)*

(c) What is the range of the ages?

....

Answer ....years *(1 mark)*

16 (a) Complete this table of values for $y = 2x - 1$

x	-1	0	1	2	3
y	-3		1		5

....
(1 mark)

(b) On the grid draw the graph of $y = 2x - 1$ for values of x from -1 to $+3$.

(2 marks)

Turn over ▶

6
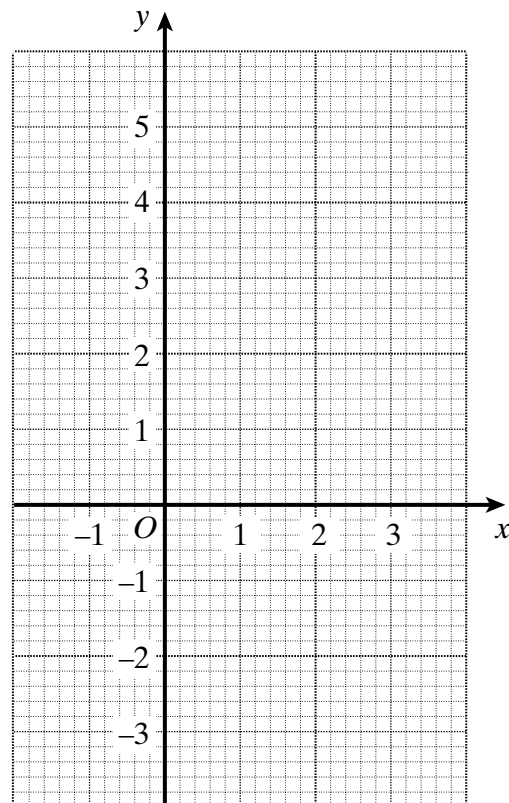
17 (a) Work out the value of 10^5

....

Answer .... *(1 mark)*

(b) Work out $12 \times 18 - 10 \times 18$

....

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....

....

Answer .... *(2 marks)*

(c) Find an approximate value of $\dfrac{41 \times 197}{78}$

You **must** show all your working.

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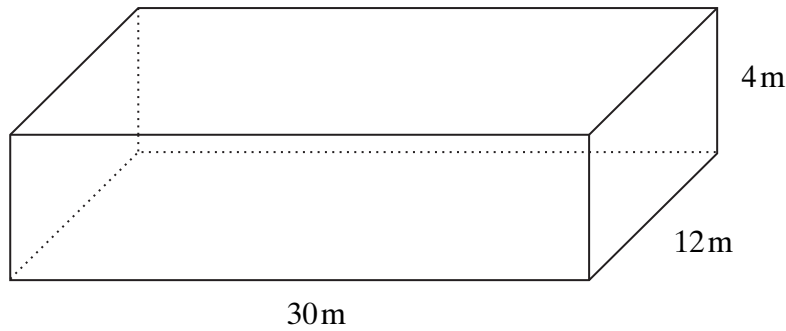Answer .... *(2 marks)*

18 A school hall is in the shape of a cuboid.

4 m

Not to scale

12 m

30 m

(a) The school hall is 30 m long, 12 m wide and 4 m high.
Calculate the volume of the hall.

....

....

....

Answer ....m^3 *(2 marks)*

(b) The school buys **ten** 5 litre tins of paint to paint the hall.
The area to be painted is 279 m^2.
Each tin covers 30 m^2.
Calculate the percentage of paint used.

....

....

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....

....

Answer ....% *(3 marks)*

10

Turn over ▶

19 (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)*

20   Write down the values of a and b.
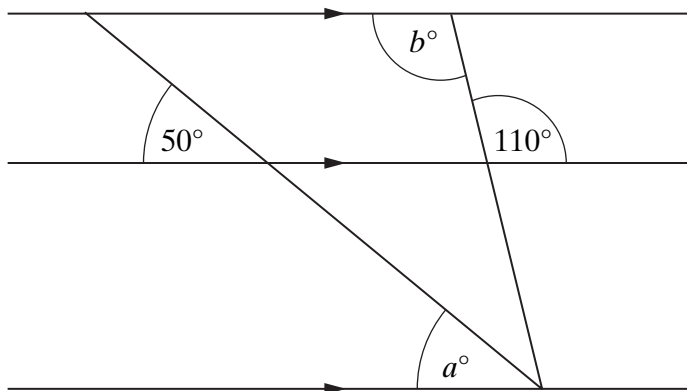
Not drawn accurately

Answer a = ... degrees, b = ... degrees   *(2 marks)*

21   The diagram shows two identical shapes, *A* and *B*.
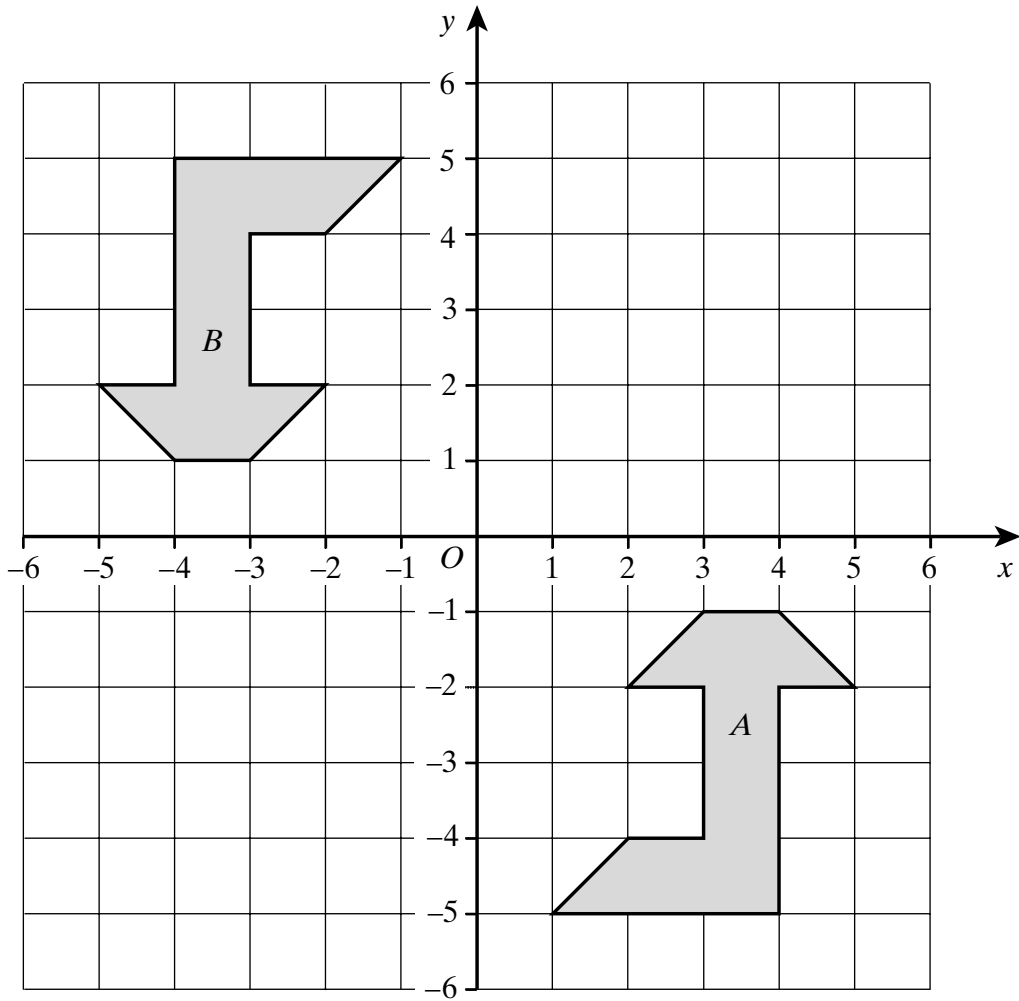
Describe fully the **single** transformation which takes shape *A* to shape *B.*

....

....

....

(3 marks)

11

Turn over ▶

22 Calculate the area of this shape.

3 cm

Not to scale

9 cm

3 cm

7 cm
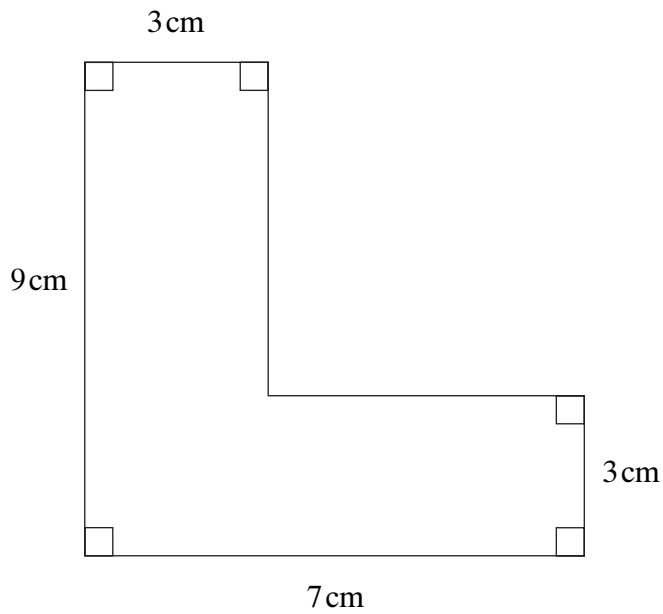
You **must** show all your working.

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....

Answer ....cm^2 *(3 marks)*

23 (a) 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)

(b) p is an odd number.
Explain why $p^2 + 1$ is always an even number.

....

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....

....

(2 marks)

END OF QUESTIONS

6