

Surname					Other Names				
Centre Number					Candidate Number				
Candidate Signature									

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General Certificate of Secondary Education
June 2003



MATHEMATICS (SPECIFICATION A) 3301/2F
Foundation Tier
Paper 2 Calculator

F

Tuesday 10 June 2003 9.00 am to 10.30 am

<p>In addition to this paper you will require:</p> <ul style="list-style-type: none"> • a calculator • mathematical instruments. 	
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For Examiner's Use	
Pages	Mark
3	
4 – 5	
6 – 7	
8 – 9	
10 – 11	
12 – 13	
14 – 15	
16 – 17	
18 – 19	
20 – 21	
22 – 23	
TOTAL	
Examiner's Initials	

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.
- If your calculator does not have a π button, take the value of π to be 3.14 unless otherwise instructed in the question.

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.
- You are expected to use a calculator where appropriate.

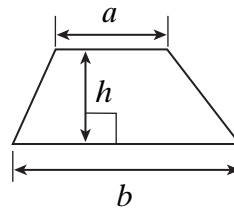
Advice

- 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 (a) Complete the shopping bill for Asif.

Leeks	3 kg at £1.60 per kg	
Bananas	2 kg at £1.15 per kg	
3 bottles of water at £0.75 each		
Total		£

(4 marks)

(b) The shop gives Asif 1 discount point for every £2 spent.
How many discount points is Asif given?

Answer (1 mark)

(c) Asif buys 7 pens at 63 pence each.
He pays with a £20 note.
How much change does he receive?

.....
.....

Answer £ (2 marks)

2 (a) Which **two** of these fractions are equivalent to $\frac{1}{4}$?

$\frac{2}{8}$ $\frac{5}{16}$ $\frac{6}{24}$ $\frac{11}{40}$

.....
.....

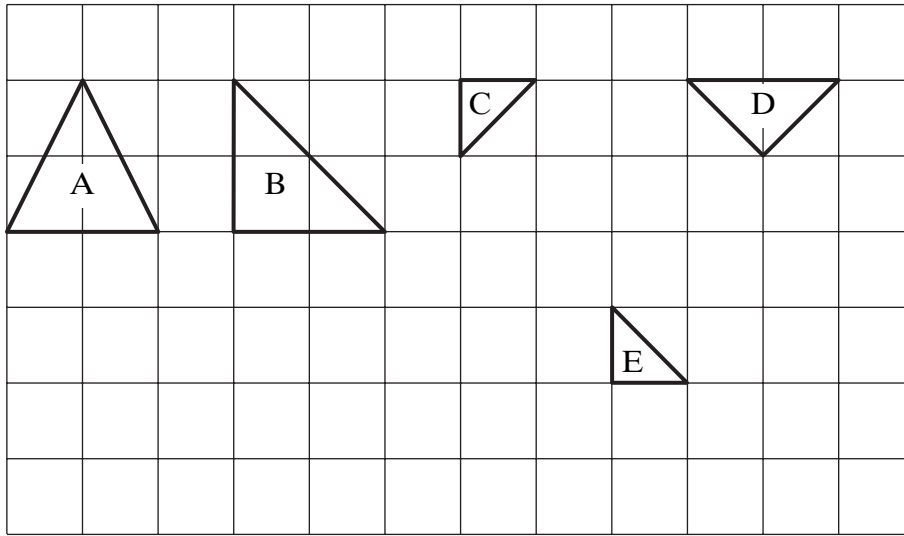
Answer (2 marks)

(b) Change $\frac{1}{4}$ to a decimal.

.....

Answer (1 mark)

3 (a) Which **two** of these shapes are congruent?

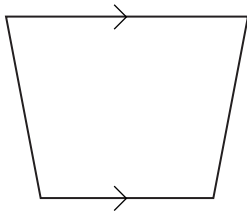


Answer and (1 mark)

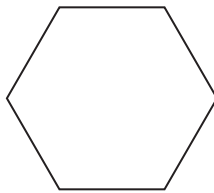
(b) The names of five shapes are given.

parallelogram triangle rectangle trapezium hexagon

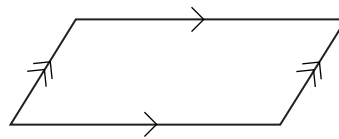
Three of them are drawn below.



P



Q



R

Complete these statements.

Shape P is called a

Shape Q is called a

Shape R is called a

(3 marks)

(c) How many sides has an octagon?

Answer (1 mark)

4 The sizes of the first eleven pairs of shoes sold in a shop one morning are

8 5 4 5 7 10 9 5 11 5 6

(a) What is the mode of the data?

.....

Answer (1 mark)

(b) What is the median shoe size?

.....

.....

Answer (2 marks)

(c) Which of the mode or median would be more useful to the shopkeeper when he is ordering more shoes?
Explain your answer.

.....

.....

(1 mark)

- 5 (a) A sequence of numbers is shown.

2 9 16 23

Write down the next two numbers in the sequence.

(2 marks)

- (b) Another sequence of numbers is shown.

2 6 12 20

Write down the next number in the sequence.

(1 mark)

- (c) A different sequence begins

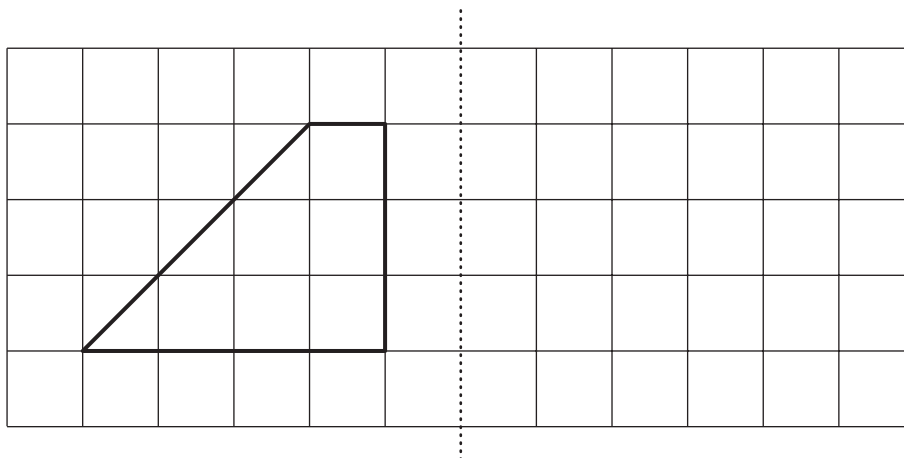
4 1 -2 -5

Write down the rule for this sequence.

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.....

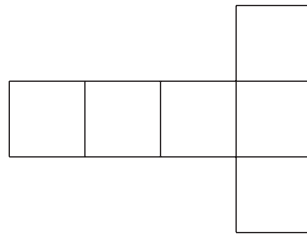
(1 mark)

- 6 Reflect the shape using the dotted line as the mirror line.



(2 marks)

7 The diagram shows the net of a solid.



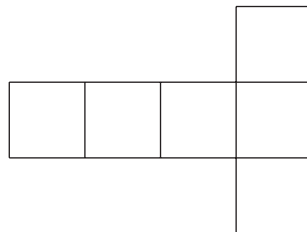
(a) What is the name of the solid?

Answer (1 mark)

(b) The net has one line of symmetry.
Draw the line of symmetry on the diagram.

(1 mark)

(c) Add two squares to the diagram below so that it has rotational symmetry of order two.



(1 mark)

TURN OVER FOR THE NEXT QUESTION

Turn over ►

8 (a) The entry prices at a theme park are

Adults	£5.25 each
Children	£3.40 each

Find the cost for 2 adults and 4 children to visit the theme park.

.....

.....

Answer £ (2 marks)

(b) The entry prices for a group are

Adults	£5.00 each
Children	£3.00 each

(i) A group of adults and children goes to the theme park for a cost of £44.
There are 4 adults in the group.
How many children are in the group?

.....

.....

Answer children (2 marks)

(ii) Another group also pays £44.
Find a different answer for the number of adults and children.

.....

.....

.....

Answer adult(s) children (2 marks)

(c) The temperature, in $^{\circ}\text{C}$, at midday at the theme park on 6 winter days was recorded.

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Temperature	-3	-2	0	-4	-1	1

(i) Which day was the warmest at midday?

Answer (1 mark)

(ii) Which day was the coldest at midday?

Answer (1 mark)

(d) The temperature, in $^{\circ}\text{C}$, at midday at the theme park on 6 summer days was recorded.

21 17 25 30 21 18

Work out the mean temperature at midday for these 6 days.

.....

.....

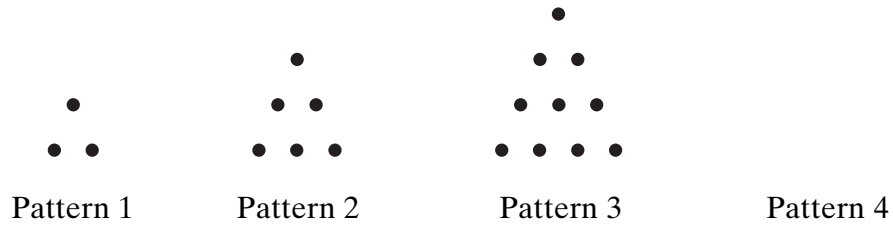
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Answer $^{\circ}\text{C}$ (3 marks)

TURN OVER FOR THE NEXT QUESTION

9 Dots are used to make a sequence of patterns.
The first three patterns are shown.



(a) Draw pattern 4.

(1 mark)

(b) Complete the table showing the number of dots in each pattern.

Pattern number	1	2	3	4	5
Number of dots	3	6	10		

(1 mark)

(c) Describe in words the rule for continuing the sequence of the number of dots.

.....

.....

(1 mark)

10 350 people go on a coach holiday.
Each coach will seat 53 people.

(a) How many coaches are needed?

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Answer (1 mark)

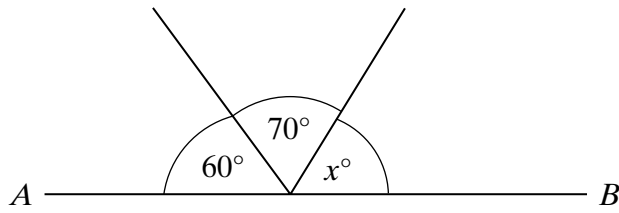
(b) How many seats will be empty?

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Answer (2 marks)

TURN OVER FOR THE NEXT QUESTION

11 (a) The diagram shows 3 angles on a straight line AB .



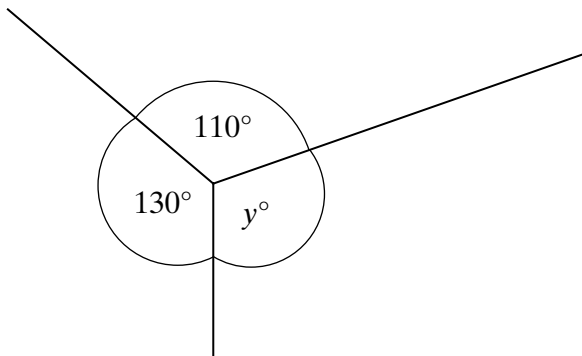
Not drawn accurately

Work out the value of x .

.....

Answer degrees (1 mark)

(b) The diagram shows 3 angles meeting at point.



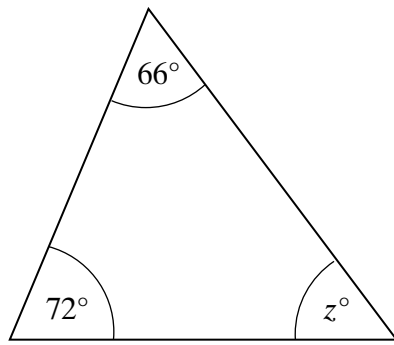
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Work out the value of y .

.....

Answer degrees (1 mark)

(c)



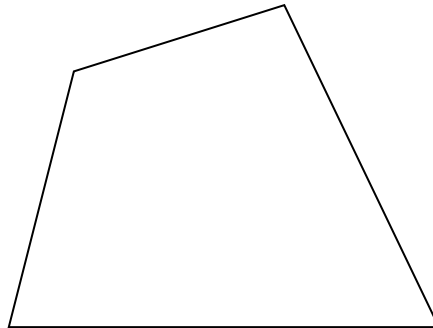
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Work out the value of z .

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Answer degrees (1 mark)

(d) Explain why the sum of the interior angles of any quadrilateral is 360° .

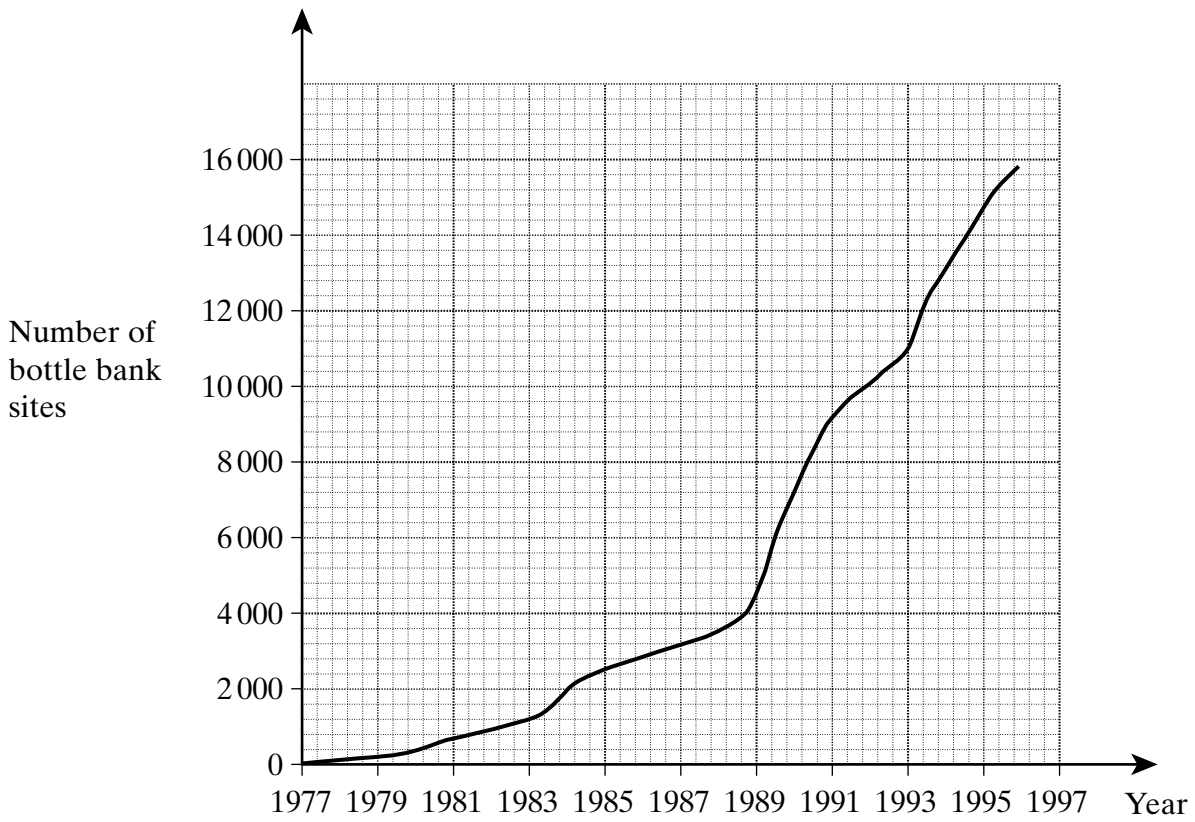


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(2 marks)

Turn over

12 The graph shows the number of bottle bank sites between 1977 and 1996.



(a) Use the graph to estimate the number of bottle bank sites in 1993.

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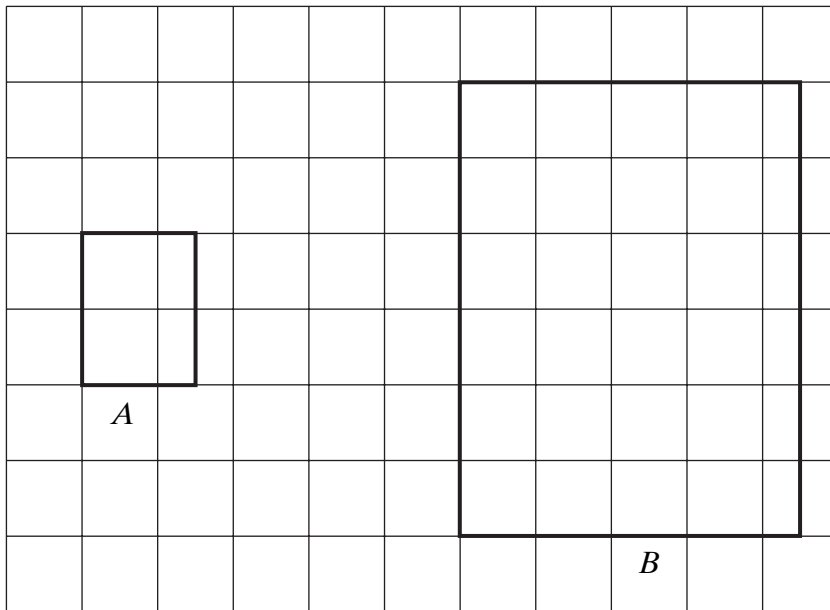
Answer (1 mark)

(b) Use the graph to estimate in which year the number of bottle bank sites was 2 000.

.....

Answer (1 mark)

13 Rectangle *A* is enlarged to give rectangle *B* on the centimetre grid.



(a) What is the scale factor of the enlargement?

.....

Answer (1 mark)

(b) Draw all the lines of symmetry of rectangle *B*.

(2 marks)

(c) **Rectangle *B*** is enlarged by scale factor 5 to give rectangle *C*.
Write down the length and width of rectangle *C*.

.....

.....

Answer Length cm

Width cm (2 marks)

14 Solve the equations

(a) $3x = 12$

.....

Answer $x =$ (1 mark)

(b) $y + 7 = 13$

.....

Answer $y =$ (1 mark)

(c) $8z - 5 = 11$

.....

.....

Answer $z =$ (2 marks)

(d) $3(w - 2) = 9$

.....

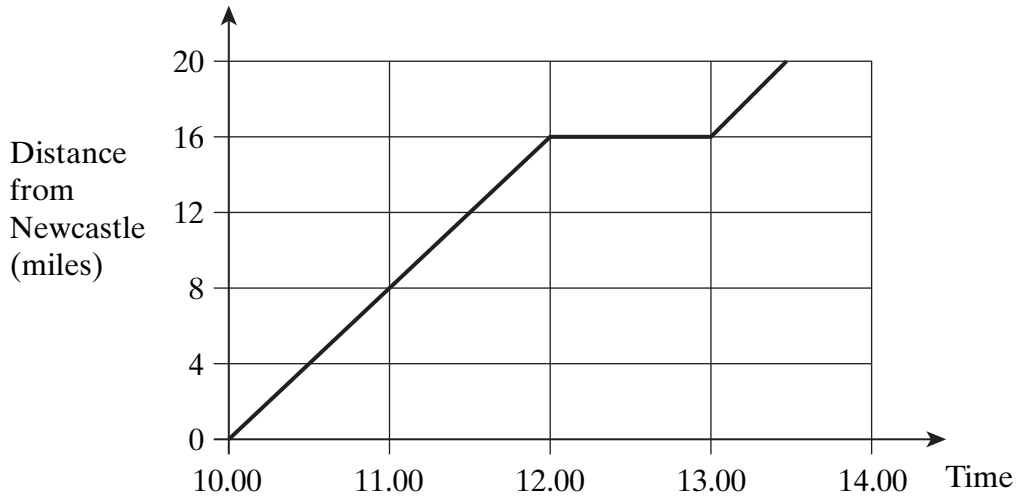
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Answer $w =$ (3 marks)

- 15 Wayne cycles from Newcastle to Ashington, a distance of 20 miles. The diagram shows the distance-time graph of his journey.



- (a) How far from Newcastle is Wayne at 11.00?

Answer miles (1 mark)

- (b) Describe what is happening between 12.00 and 13.00

.....
..... (1 mark)

- (c) How far does Wayne travel in the first 2 hours of his journey?

Answer miles (1 mark)

- (d) What is Wayne's average speed over the first 2 hours of his journey?

.....
.....
Answer mph (2 marks)

- (e) Darren travels from Ashington to Newcastle by bus. He leaves Ashington at 10.00 and arrives in Newcastle at 11.00. On the diagram draw a possible distance-time graph of Darren's journey.

(1 mark)

16 The table shows the exchange rates between different currencies.

£1 (pound) is worth 1.64 euros
\$1 (dollar) is worth 1.05 euros

(a) Jane changes £400 into euros.
How many euros does she receive?

.....
.....

Answer euros (2 marks)

(b) Sonia changes 672 euros into dollars.
How many dollars does she receive?

.....
.....

Answer dollars (2 marks)

17 Tom has £2 200.
He gives $\frac{1}{4}$ to his son and $\frac{2}{5}$ to his daughter.
How much does Tom keep for himself?
You **must** show all your working.

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

Answer £ (3 marks)

18 Miss Evans earns £240 per week.
She is awarded a pay rise of 3.5%.
How much does she earn each week after the pay rise?

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.....
.....

Answer £ (3 marks)

19 A circular pond has a radius of 2.2 m.

(a) Calculate the circumference of the pond.

.....
.....

Answer m (2 marks)

(b) Calculate the area of the pond.

.....
.....

Answer (3 marks)

TURN OVER FOR THE NEXT QUESTION

20 Forty people take a driving test at Centre *A* on one day.
The table shows the results.

	Pass	Fail
Male	10	13
Female	6	11

(a) A person is chosen at random from the group.
What is the probability that the person is male?

.....
.....

Answer (2 marks)

(b) A person is chosen at random from the group.
What is the probability that the person passed the test?

.....
.....

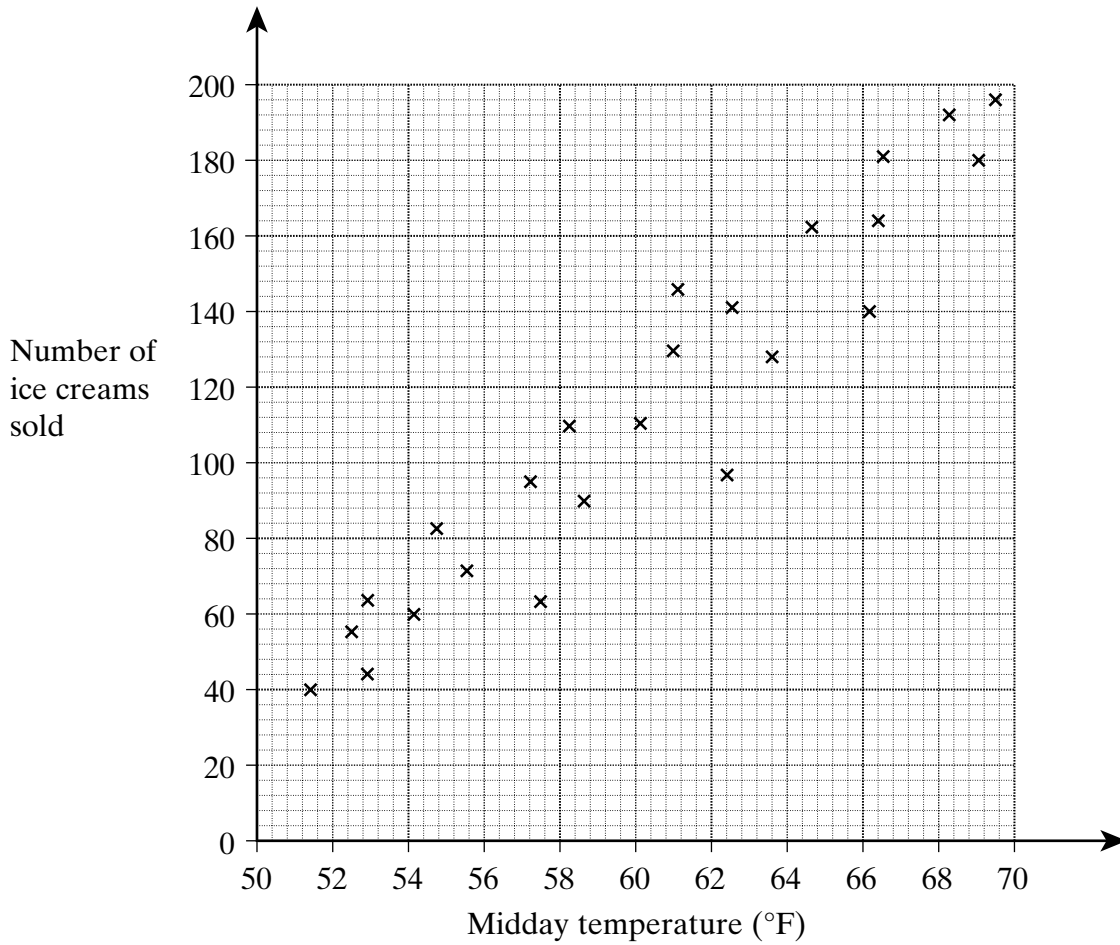
Answer (1 mark)

(c) It is known that throughout Britain the probability of a person passing their test is 0.7
John says it is easier to pass the test at Centre *A*.
Explain why John could be wrong.

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

(1 mark)

- 21 The scatter graph shows the number of ice creams sold plotted against the midday temperature.



- (a) Draw a line of best fit on the scatter graph.

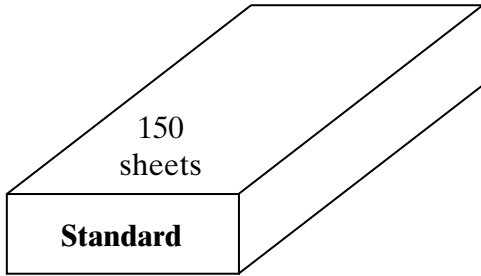
(1 mark)

- (b) Describe the relationship between the number of ice creams sold and the midday temperature.

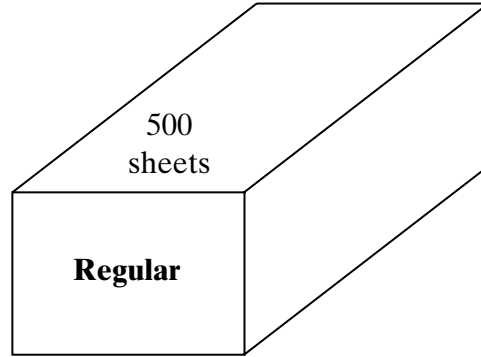
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(1 mark)

22 A shop sells two different packs of the same brand of paper.



Cost 95p



Cost £3.20

Which of the two packs gives the better value for money?
You **must** show all your working.

.....

.....

.....

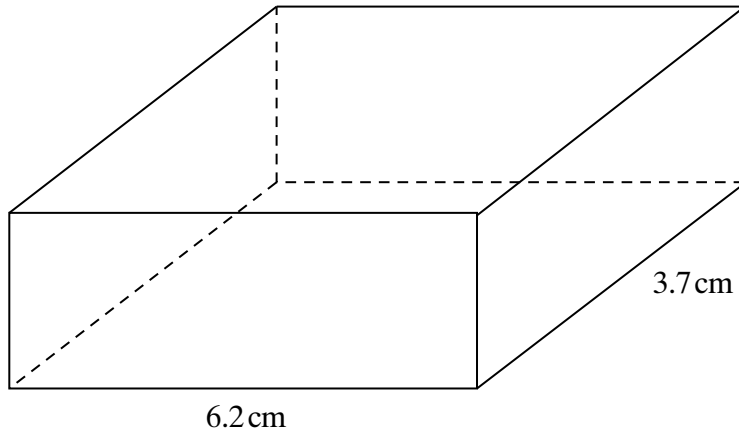
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(4 marks)

- 23 A cuboid is shown below.
The cuboid has volume 60 cm^3 .
The base is 6.2 cm long and 3.7 cm wide.



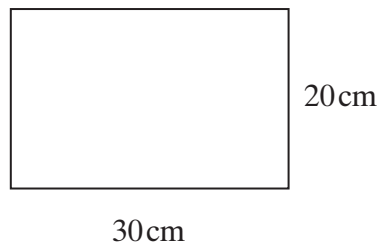
Not to scale

- (a) Calculate the height of the cuboid.
Give your answer to a sensible degree of accuracy.

.....
.....

Answer cm (3 marks)

- (b) A tile is shown below.



Not to scale

Find the area of the tile.
Give your answer in m^2 .

.....
.....

Answer m^2 (2 marks)

END OF QUESTIONS