

**Oxford Cambridge and RSA Examinations**  
**General Certificate of Secondary Education**

**MATHEMATICS SYLLABUS A**  
PAPER 2  
FOUNDATION TIER

**1962/2**

**Specimen Paper 2003**

Additional materials:      Electronic Calculator  
   Geometrical instruments  
   Tracing paper (optional).

**TIME** 1 hour 30 minutes

Candidate Name
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Centre Number
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Candidate Number
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**INSTRUCTIONS TO CANDIDATES**

- Write your name in the space above.
- Write your Centre number and Candidate number in the boxes above.
- *Answer all the questions.*
- Write your answers, in blue or black ink, in the spaces provided on the question paper.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- Show your working. Marks may be given for working that shows that you know how to solve the problem even if you get the answer wrong.

**You are expected to use an electronic calculator for this paper.**

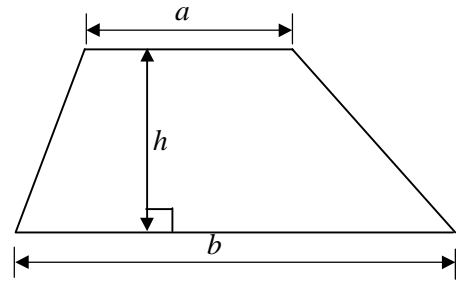
**INFORMATION FOR CANDIDATES**

- The number of marks is given in brackets [ ] at the end of each question or part question.

For examiner's use only

**FORMULAE SHEET: FOUNDATION TIER**

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



- 1** A group of friends played a computer game.  
Here are the scores of some of them.

Jan	4093
Pete	2605
Will	6582
Deena	4630

- (a) Write these scores in order, largest first.

*Answer (a)* \_\_\_\_\_ [1]

- (b) How many more points did Jan score than Pete?

\_\_\_\_\_

*Answer (b)* \_\_\_\_\_ [1]

- (c) Cara scored seven thousand and twenty-three points.

Write her score in figures.

*Answer (c)* \_\_\_\_\_ [1]

- (d) Dewi scored only  $\frac{1}{3}$  as many points as Will.

How many points did Dewi score?

\_\_\_\_\_  
\_\_\_\_\_

*Answer (d)* \_\_\_\_\_ [1]

- (e) The number of points scored by Fred was 10% of the number scored by Deena.

How many points did Fred score?

\_\_\_\_\_

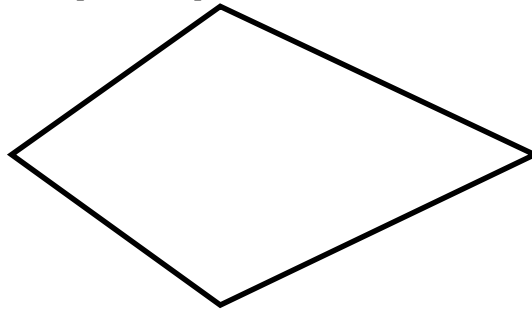
*Answer (e)* \_\_\_\_\_ [1]

- (f) Mehra scored 9278 points.

Write 9278 to the nearest 10.

*Answer (f)* \_\_\_\_\_ [1]

- 2 (a) This quadrilateral has two pairs of equal sides.

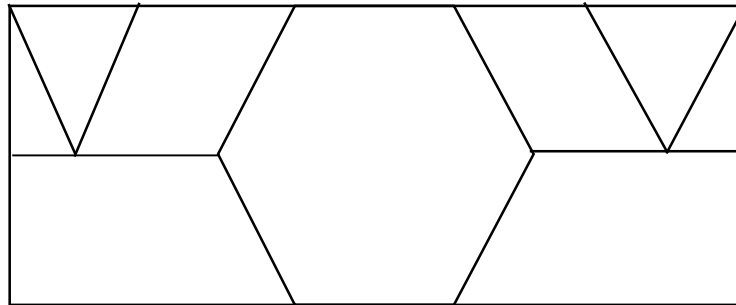


- (i) What is the special name of the quadrilateral?

Answer (a)(i) \_\_\_\_\_ [1]

- (ii) Mark with \* an obtuse angle in the quadrilateral. [1]

- (b)



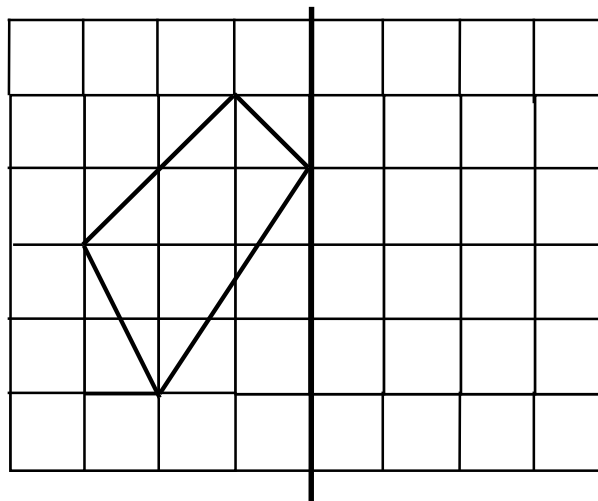
- (i) Shade a parallelogram in this design. [1]

- (ii) Mark with + two shapes in this design that are congruent to each other. [1]

- (iii) Name the shape in the centre of this design.

Answer (b)(iii) \_\_\_\_\_ [1]

- (c) Reflect this shape in the mirror line.



mirror  
line

[2]

3 39 members of Arwick Youth Club went on an outing to a leisure centre. They went in minibuses which could seat up to 15 members.

- (a) (i) How many minibuses were needed?  
 (ii) How many spare seats were there?

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Answer (a)(i) \_\_\_\_\_

Answer(ii) \_\_\_\_\_ [3]

The transport costs were £90 altogether. They also had to pay £150 for the group to use the leisure centre.

- (b) Jo collected £6.50 from each passenger to pay for this. How much was left over?

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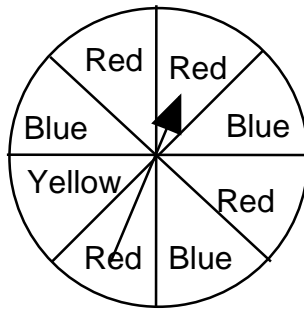
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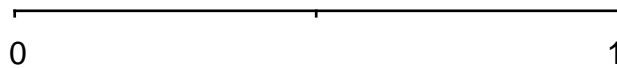
Answer (b) \_\_\_\_\_ [2]

On the journey, some of them played a game using this fair spinner.



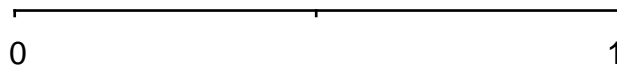
- (c) The pointer is spun once.  
 Use an X to mark these probabilities on the probability lines.

- (i) The probability that the pointer lands on Red.



[1]

- (ii) The probability that the pointer lands on Green.



[1]

4 Here are the minimum temperatures in Sue's garden one week.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2°	6°	-4°	-1°	-2°	3°	5°

(a) What was the coldest temperature that week?

Answer (a) \_\_\_\_\_ °C [1]

(b) What was the difference between these temperatures on Thursday and Friday?

\_\_\_\_\_

Answer (b) \_\_\_\_\_ °C [1]

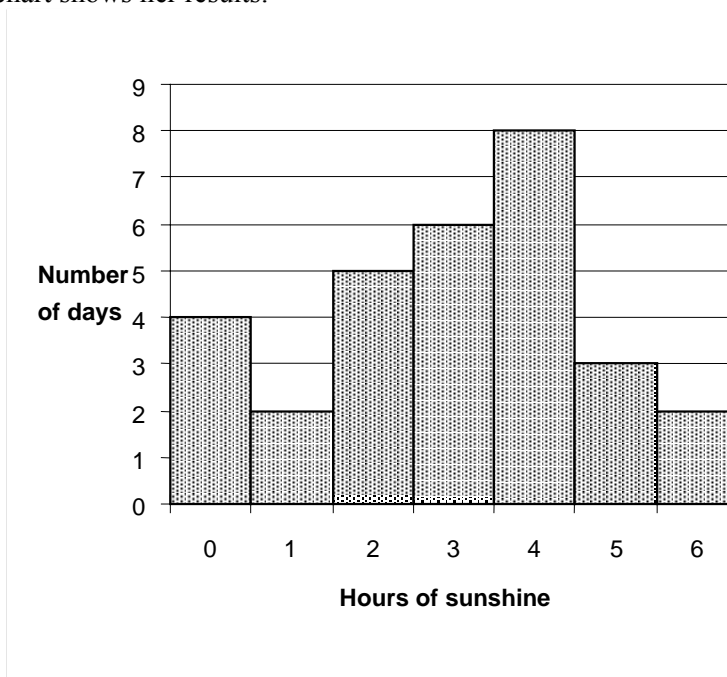
(c) What is the median of these temperatures?

\_\_\_\_\_

Answer (c) \_\_\_\_\_ °C [1]

Sue also recorded the number of hours of sunshine each day during one month.

This bar chart shows her results.



(d) What was the mode of the number of hours of sunshine this month?

Answer (d) \_\_\_\_\_ [1]

(e) How many days were there in this month? Show how you work out the answer.

\_\_\_\_\_

\_\_\_\_\_

Answer (e) \_\_\_\_\_ [2]

5 Here is a sequence of patterns.

**Pattern 1**

x  
o o  
x

**Pattern 2**

x x  
o o o  
x x

**Pattern 3**

x x x  
o o o o  
x x x

**Pattern 4**

(a) Draw Pattern 4 in the space above.

[1]

(b) Complete this table.

Pattern	1	2	3	4	5
Number of circles	2	3			
Number of crosses	2	4			

[2]

(c) What pattern do you notice in the 'Number of crosses' row in the table?

Answer (c) \_\_\_\_\_

\_\_\_\_\_

[1]

(d) How many circles are there in Pattern 20?

\_\_\_\_\_

Answer (d) \_\_\_\_\_ [1]

**6** A recipe for chocolate mousse for 2 people uses these ingredients.

- 100g chocolate
- 10g unsalted butter
- 2 large eggs

**(a)** How much chocolate would be needed for 1 person?

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*Answer (a)* \_\_\_\_\_ g **[1]**

**(b)** Write the ingredients needed for 6 people.

Chocolate \_\_\_\_\_ g

Unsalted butter \_\_\_\_\_ g

Large eggs \_\_\_\_\_ **[2]**

**(c)** John makes some mousse and uses 150 g chocolate.

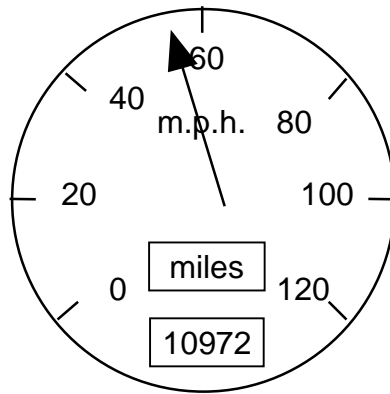
How many people is he making the recipe for?

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*Answer (c)* \_\_\_\_\_ **[2]**



7 The diagram shows a car's speedometer during a journey.



(a) (i) The car's mileage was 10972 miles. Write 10972 in words.

Answer (a)(i) \_\_\_\_\_ [1]

(ii) How fast was the car going?

Answer (ii) \_\_\_\_\_ m.p.h. [1]

At the end of the journey the car's mileage was 11207 miles.  
At the start of the journey the car's mileage was 10866 miles.

(b) What was the length of this journey?

\_\_\_\_\_

Answer (b) \_\_\_\_\_ miles [1]

The car went 11 miles on a litre of petrol. Petrol cost 83.9 pence per litre.

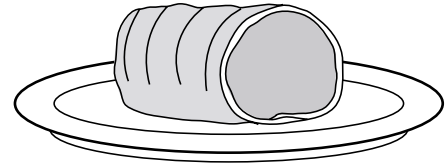
(c) What was the cost of the petrol for this journey?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Answer (c) £ \_\_\_\_\_ [3]

8 To cook roast lamb in a moderate oven, my recipe book gives these times.

*78 minutes per kilogram, plus 35 minutes*



(a) How long should I cook a 1.6 kg joint of lamb?

Give your answer in minutes to the nearest minute.

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*Answer (a)* \_\_\_\_\_ minutes [3]

(b) Write your answer to part (a) in hours and minutes.

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*Answer (b)* \_\_\_\_\_ hours \_\_\_\_\_ minutes [1]

(c) I cooked one joint of lamb for 230 minutes.

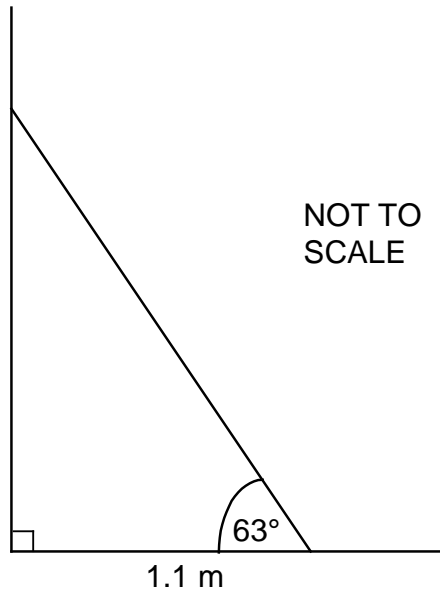
What was the weight of this joint?

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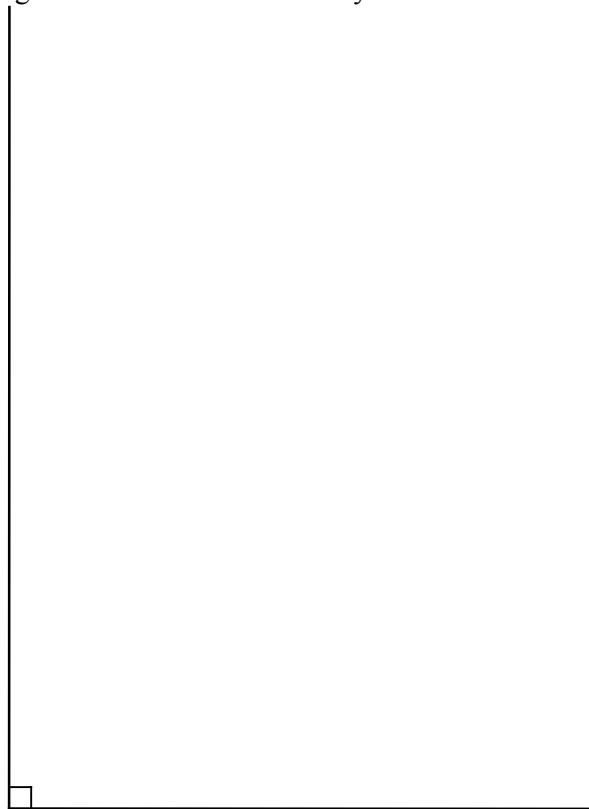
*Answer (c)* \_\_\_\_\_ kg [2]



A tall fence is supported by a post at an angle as shown.  
 The foot of the post is 1.1 m from the fence.  
 The post makes an angle of  $63^\circ$  with the ground.

(a) Complete a scale drawing to show the angled post.

The fence and the ground have been drawn for you. Use a scale of 4 cm to 1 metre.



[3]

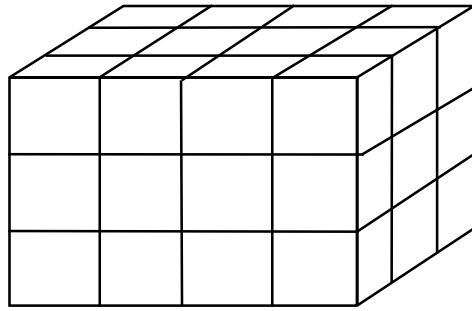
(b) How far up the fence does the post reach?

\_\_\_\_\_

Answer (b) \_\_\_\_\_ m [2]

- 10 (a) This cuboid is made from 1 centimetre cubes.

What is its volume?



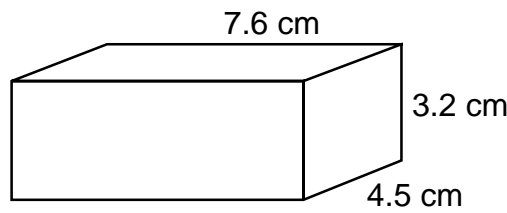
NOT TO SCALE

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Answer (a) \_\_\_\_\_ [2]

- (b) Calculate the volume of this cuboid.



NOT TO SCALE

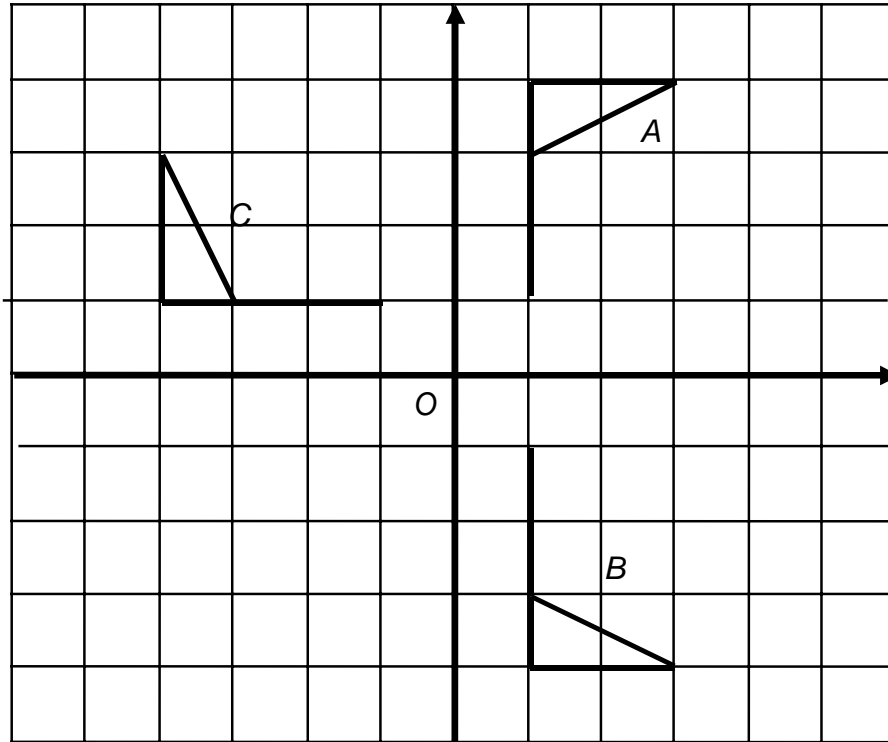
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Answer (b) \_\_\_\_\_ [2]

11 (a)



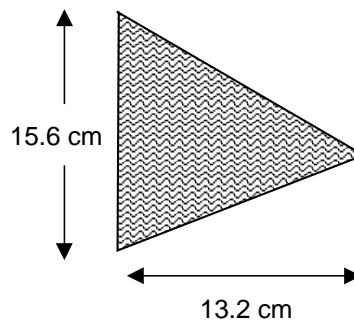
(i) Describe fully the single transformation that maps flag *A* onto flag *B*.

\_\_\_\_\_ [2]

(ii) Describe fully the single transformation that maps flag *A* onto flag *C*.

\_\_\_\_\_ [3]

(b) Calculate the area of this flag.

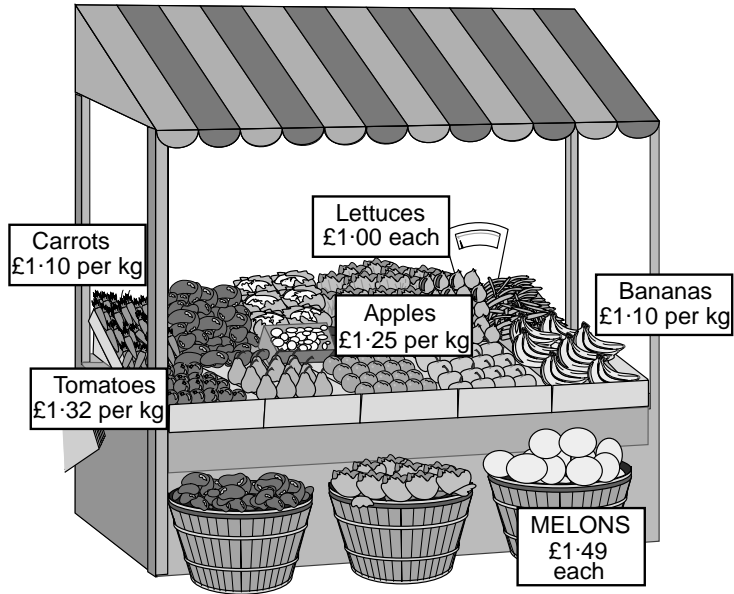


\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Answer (b) \_\_\_\_\_ cm<sup>2</sup> [2]



- (a) Sasha buys 2 melons, 500g of tomatoes and some apples. She receives £4.11 change from £10.

How many kg of apples did she buy? Show the calculations you make.

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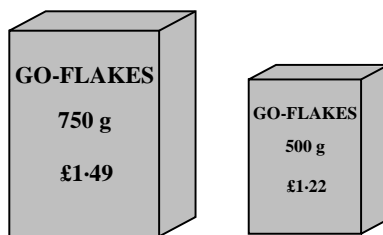


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Answer (a) \_\_\_\_\_ kg [4]



- (b) Which of these packs of cereal is better value for money? Show clearly how you decide.

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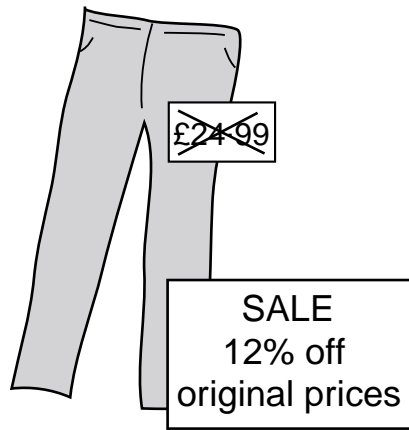


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Answer (b) \_\_\_\_\_ [2]



(c) Sasha bought this pair of trousers in a sale. How much did they cost?

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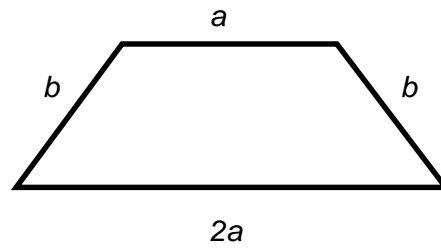
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Answer (c) £ \_\_\_\_\_ [3]

- 13 (a) Write an expression for the cost, in pence, of  $x$  pencils at 35p each.

Answer (a) \_\_\_\_\_ p [1]

- (b) Write as simply as possible an expression for the perimeter of these shapes.



**NOT TO  
SCALE**

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Answer (b) \_\_\_\_\_ [2]

- (c) Solve the equation  $2x + 3 = 16$ .

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Answer (c)  $x =$  \_\_\_\_\_ [2]

- (d) Where  $y = 4x + 1$ ,

- (i) find the value of  $y$  when  $x = -2$ ,

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Answer (d)(i)  $y =$  \_\_\_\_\_ [1]

- (ii) find the value of  $x$  when  $y = 19$ .

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Answer (ii)  $x =$  \_\_\_\_\_ [2]



14 Calculate the following.

(a)  $\sqrt{57.76}$

\_\_\_\_\_

*Answer (a)* \_\_\_\_\_ [1]

(b)  $4.2^4$

\_\_\_\_\_

*Answer (b)* \_\_\_\_\_ [1]

(c)  $\frac{3.9 - 0.65}{0.013}$

\_\_\_\_\_

\_\_\_\_\_

*Answer (c)* \_\_\_\_\_ [1]

(d)  $4.3 + 2.6 \times (16.8 + 90.7)$ . Give your answer to the nearest integer.

\_\_\_\_\_

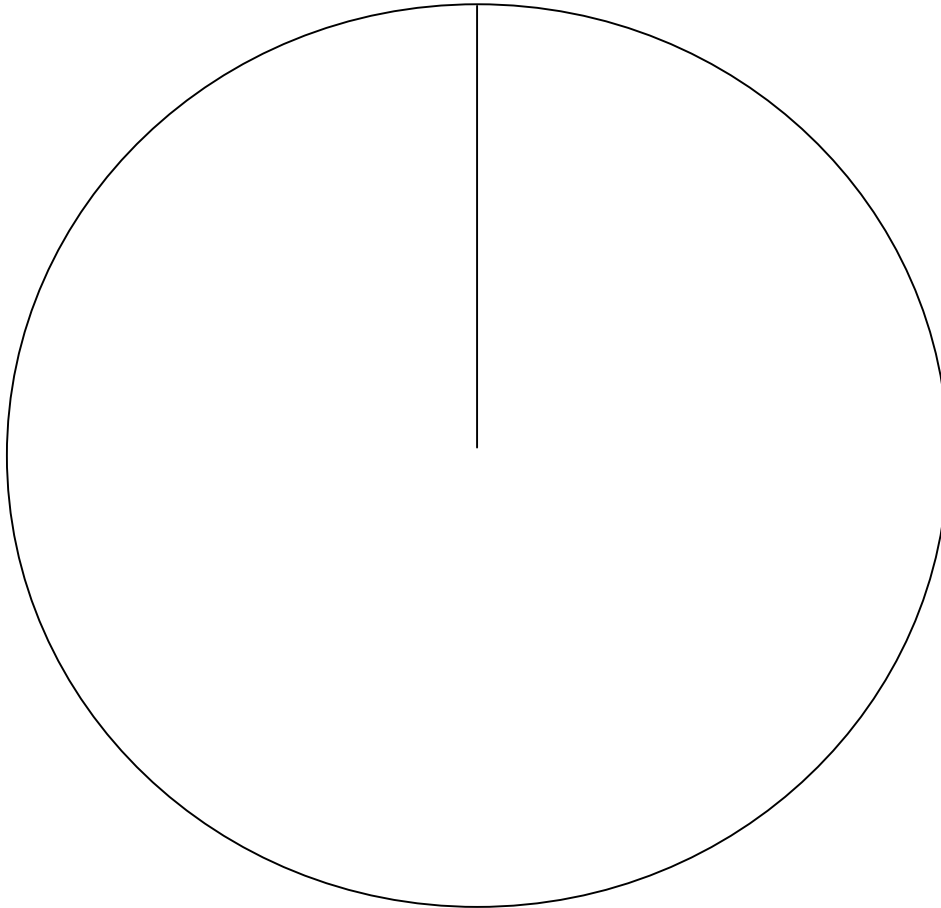
\_\_\_\_\_

*Answer (d)* \_\_\_\_\_ [2]

- 15 Pali asked 180 boys what was their favourite sport. Here are his results.

Sport	Soccer	Rugby	Cricket	Basketball	Other
Number of boys	74	25	18	37	26

- (a) Draw a pie chart to show these results.



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[3]

Pali also asked 90 girls about their favourite sport. In a pie chart showing the results, the angle for Tennis was  $84^\circ$ .

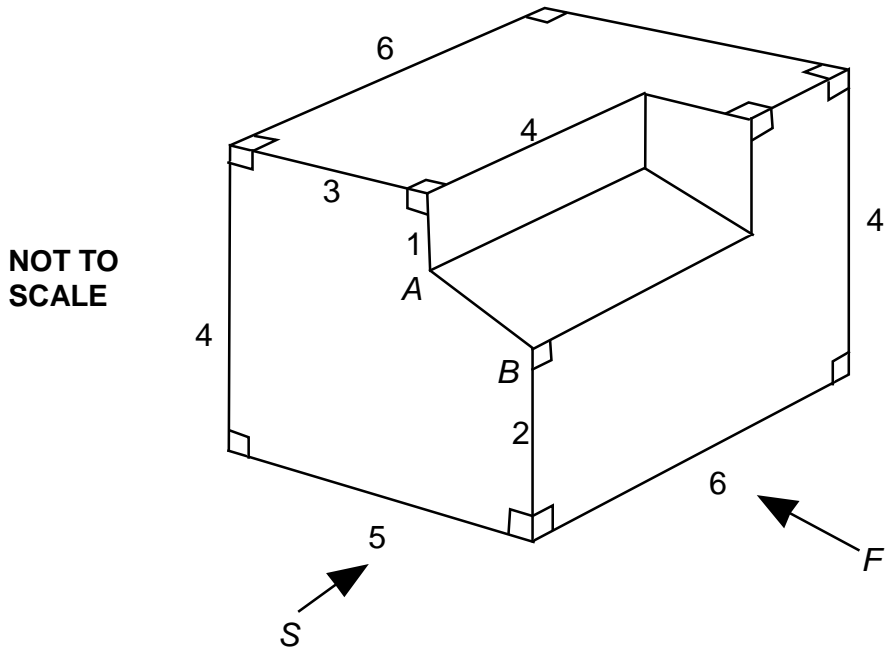
- (b) How many of these girls said that Tennis was their favourite sport?

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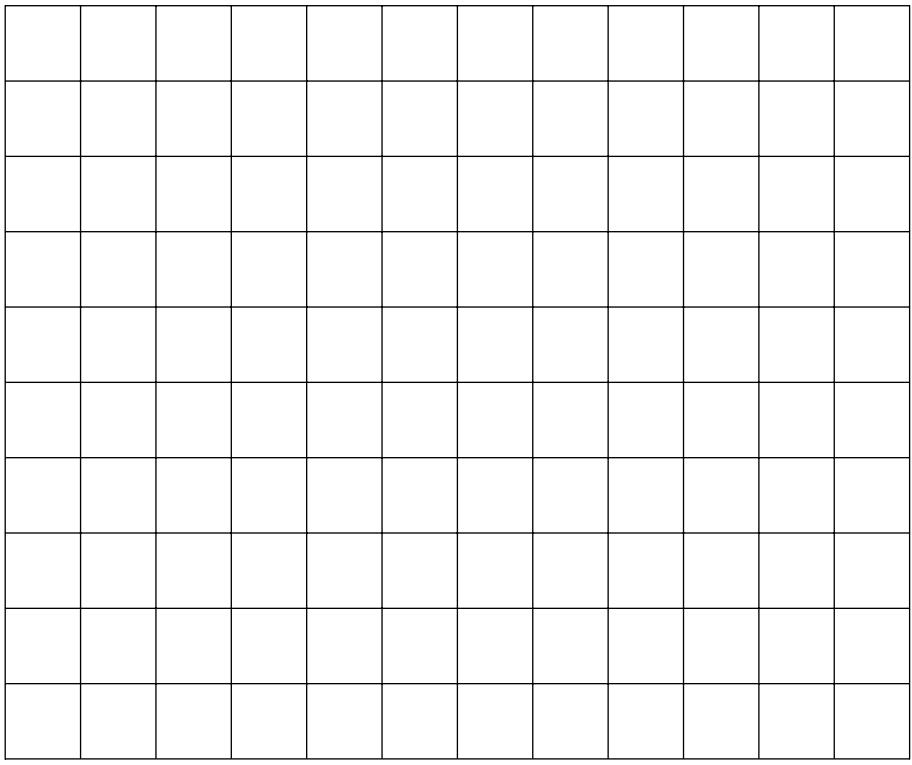
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Answer (b) \_\_\_\_\_ [2]

16 The drawing shows a cuboid with a prism removed. The measurements are in centimetres.



(a) On the grid, draw full size the front ( $F$ ) and side ( $S$ ) elevations.



[4]

(b) What is the length of the sloping edge marked  $AB$  on the drawing?

Answer (b) \_\_\_\_\_ cm [1]

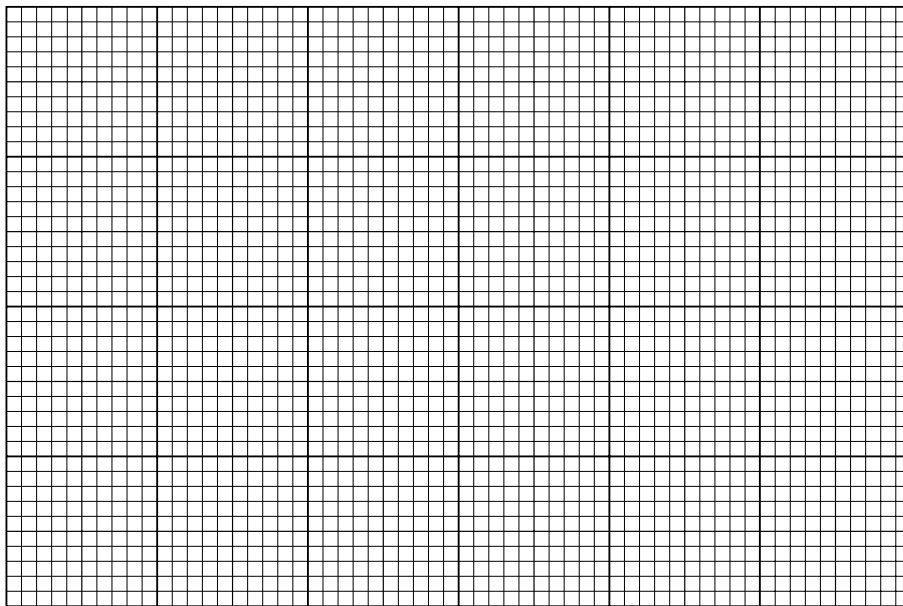
17 The table shows the weight of the luggage for passengers on one plane.

Weight ( $w$ kg)	Number of passengers
$0 < w \leq 5$	14
$5 < w \leq 10$	28
$10 < w \leq 15$	12
$15 < w \leq 20$	9
$20 < w \leq 25$	2

(a) What was the modal class?

Answer (a) \_\_\_\_\_ [1]

(b) Draw a frequency diagram for this distribution.



[3]

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MARK SCHEME

**Specimen Paper 2003**

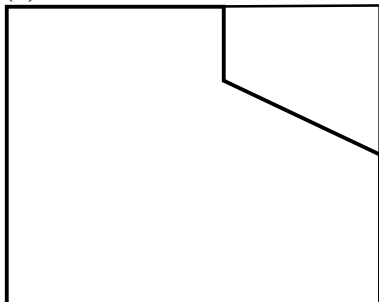
<b>1</b>	<b>(a)</b> 6582, 4630, 4093, 2605	1		
	<b>(b)</b> 1488	1		
	<b>(c)</b> 7023	1		
	<b>(d)</b> 2194	1		
	<b>(e)</b> 463	1		
	<b>(f)</b> 9280	1		6
<hr/>				
<b>2</b>	<b>(a) (i)</b> kite	1		
	<b>(ii)</b> obtuse angle marked with *	1		
	<b>(b) (i)</b> parallelogram shaded	1		
	<b>(ii)</b> two congruent shapes marked with +	1		
	<b>(iii)</b> hexagon	1		
<b>(c)</b> reflection drawn correctly	2	1 for 3 vertices correct		7
<hr/>				
<b>3</b>	<b>(a) (i)</b> 3 (ii) 6	3	1 for 1 answer correct	
	<b>(b)</b> 13.50	2	1 for 253.5(0) seen or for 13.5	
	<b>(c) (i)</b> cross at halfway mark	1	tolerance 2mm in either or both parts	7
	<b>(ii)</b> cross at 0	1		
	<hr/>			
<b>4</b>	<b>(a)</b> -4	1		
	<b>(b)</b> 5	1	or -5	
	<b>(c)</b> 2	1		
	<b>(d)</b> 4	1		
	<b>(e)</b> 30 with evidence of adding 4 + 2 + 5 etc	2	1 for evidence of adding at least 3 'heights'	6
<hr/>				

<b>5</b>	(a)	<pre> x x x x o o o o o x x x x </pre>	1		
	(b)	circles: 4, 5, 6 crosses 6, 8, 10	1 1		
	(c)	they are even numbers or they go up in twos	1		
	(d)	21	1		5
<b>6</b>	(a)	50	1		
	(b)	300, 30, 6	2	1 for 2 correct	
	(c)	3	2	1 for $150 \div 100$ or $150 \div 50$	5
<b>7</b>	(a) (i)	ten thousand nine hundred and seventy two	1		
	(ii)	56	1		
	(b)	341	1		
	(c)	26.00 or 26.01	3	M1 for $341 \div 11$ or 31 2 for 2600(.9) or 26.009	6
<b>8</b>	(a)	160	3	M1 for $78 \times 1.6 (+ 35)$ or 124.8 or 125; 2 for 159.8	
	(b)	2h 40m	1	ft from their (a) if not complete hours or half hours	
	(c)	2.5	2	1 for 195 seen	6
<b>9</b>	(a)	horizontal line 4.4 cm $\pm$ 2mm 63° drawn $\pm$ 2° line completed up to fence	1 1 1		
	(b)	ft for their length in cm $\div$ 4	2	1 for their length in cm seen $\pm$ 2mm	5
<b>10</b>	(a)	36 cm <sup>3</sup> seen in both parts	1 1		
	(b)	109.(44)	2	M1 for $7.6 \times 3.2 \times 4.5$	4

<b>11</b>	<b>(a) (i)</b> reflection in x axis	2	M1 for reflection	
	<b>(ii)</b> rotation 90° [anticlockwise] about O, the origin or (0,0)	B1 B1 B1	allow 'turn'	
	<b>(b)</b> 102(.96) or 103	2	M1 for 0.5 x 13.2 x 15.6	7
<b>12</b>	<b>(a)</b> 1.8	4	M1 for $5.89 - 2 \times 1.49$ $5.89 - 0.5 \times 1.32$ A1 for 2.25 M1 for their $(2.25) \div 1.25$	
	<b>(b)</b> 750g cheaper, with evidence	2	M1 for two consistent comparisons eg g per £ for both sizes or price of 1500g etc	
	<b>(c)</b> 21.99 or 22.(00)	3	M1 for $0.12 \times 24.99$ M2 for $0.88 \times$ $24.99$ or finding 12% and subtracting from 24.99	
<b>13</b>	<b>(a)</b> 35x	1		
	<b>(b)</b> 3a + 2b	2	B1 for one of 2a and 3b	
	<b>(c)</b> 6.5	2	M1 for $2x = 13$ or $x + 6.5 = 8$	
	<b>(d) (i)</b> -7 <b>(ii)</b> 4.5	1 2	M1 for $18 = 4x$	
<b>14</b>	<b>(a)</b> 7.6	1		
	<b>(b)</b> 311.(1696)	1		
	<b>(c)</b> 250	1		
	<b>(d)</b> 284	2	1 for other rounding / truncations of 283.8	
<b>15</b>	<b>(a)</b> Angles in degrees 148, 50, 36, 74, 52 At least 3 sectors drawn correct size [total. 1°] Labels	1 1 1	or %: 41, 13-14, 10, 20-21, 14-15	
	<b>(b)</b> 21	2	M1 for 4° per person or $84/360 \times 90$	

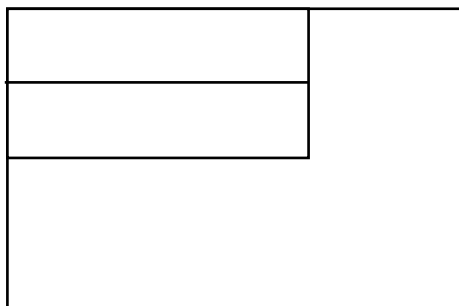


16 (a) Side



2 B1 for front face correct or for for shape + back corner with one accuracy error

Front



2 B1 for correct with horizontal line missing, or for correct lines with one accuracy error

(b) 2.2 - 2.3

1

5

17 (a)  $5 < w < 10$

1 allow 5-10

(b) bar graph or frequency polygon drawn:  
axes scaled and labelled  
edges of bars at boundaries of groups or  
points plotted at midpts of groups  
heights of bars or points correct

1

1

1

4

**Total 100**



9 3.4d 3.3d	Scale drawing	fence support				5				5							hard F or easy E since triangle started	
10 3.4g	vol of cuboids + state units					4	2	2		2							paper 4 q 1(b) only + extra part	
11 3.3b 3.4f	Describe tfns + find area of triangle	Flags				7		2	5	7			5				paper 4 q 2	
12 2.4a 3.4a 2.3a 2.3m	Money prob; best buy; % decrease	Shopping	9					6	3	4	9		4	2			paper 4 q 3; (a) is easy E but does involve kg/g as well as money	
13 2.5f 2.5b 2.5e	Simple alg		6	2			1	5	2	7							paper 4 q 4 + extra part	
14 2.3e 2.3h	Calc effectiveness		5					2	3	3							paper 4 q 5	
15 4.4a 4.5b	Pie chart	Sports				5		5		5							paper 4 q 6	
16 3.2k	Plan and elevation					5				5			4				paper 4 q 8	
17 4.4b 4.4a	Modal class + draw freq diag of gped distn	Luggage				4				4			3				paper 4 q 9	
Totals for paper:			38	6	13	28	15	34	22	22	22	9	42	0	9	12	7	
Totals for tier:																		
Target totals for paper			Nu	Man Alg	Non Man Alg	SS	HD					M/S	Com F/I	Com I/H	Str 1	Str 2	Str 3	
Fdn			38			28	15	34	22	22	22							
Inter			28			28	15	25	25	25	25							
Higher			19			28	15	25	25	25	25							
Target totals for tier			Fdn	n/a								10_13			8	8	8	minimum of 25 AO1 per tier; 8 per strand
Inter					35-40							15-20			8	8	8	minimum of 25 AO1 per tier; 8 per strand
Higher					50							20-25			8	8	8	minimum of 25 AO1 per tier; 8 per strand

