RECOGNISING ACHIEVEMENT

Oxford Cambridge and RSA Examinations

General Certificate of Secondary Education

Mathematics C (Graduated Assessment) 1966/2341A (F)

FOUNDATION TIER TERMINAL PAPER – SECTION A

Specimen Paper 2003

Candidates answer on the question paper

Additional materials:

Tracing paper (optional)
Geometrical instruments
Pie chart scale

TIME 1 hour

Candidate Name	Centre Number	Candidate Number

INSTRUCTIONS TO CANDIDATES

- Write your name, 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.
- There is a space after most questions. Use it to do your working. In many questions marks will be given for correct working even if the answer is incorrect.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total mark available for this section is 50.

For Examiner's use only	
Section A	
Section B	
Total	

WARNING
You are not allowed to use a calculator in Section A of this paper.

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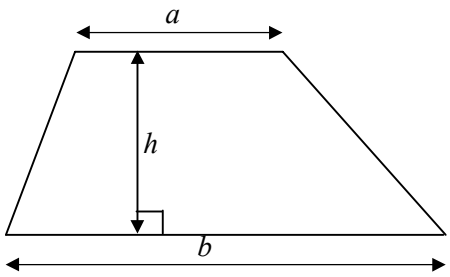
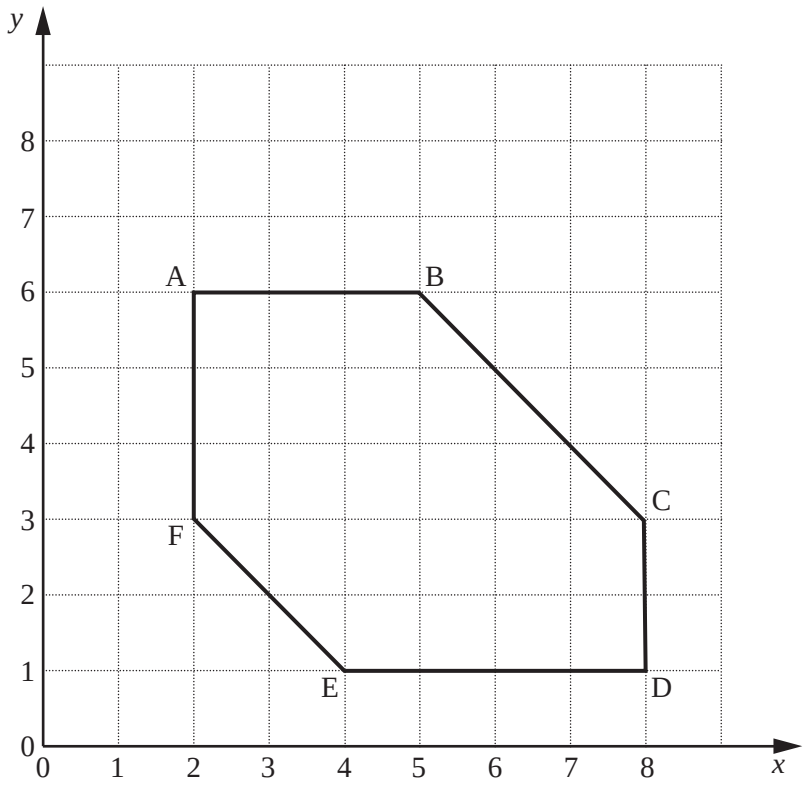
FORMULAE SHEET: FOUNDATION TIER

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



1



(a) Write down the co-ordinates of A.

(a) (_____, _____) [1]

(b) What is the name of the shape drawn on the grid?

(b) _____ [1]

(c) Measure the length of the side BC.

(c) _____ [2]

(d) Find the perimeter of the shape.

(d) _____ [2]

(e) Find the area of the shape.

(e) _____ cm^2 [2]

8

2 Look at these numbers.

2 8 16 25 31 45 56

From this list, write down

(a) an odd number,

(a) _____ [1]

(b) a square number,

(b) _____ [1]

(c) a multiple of 5,

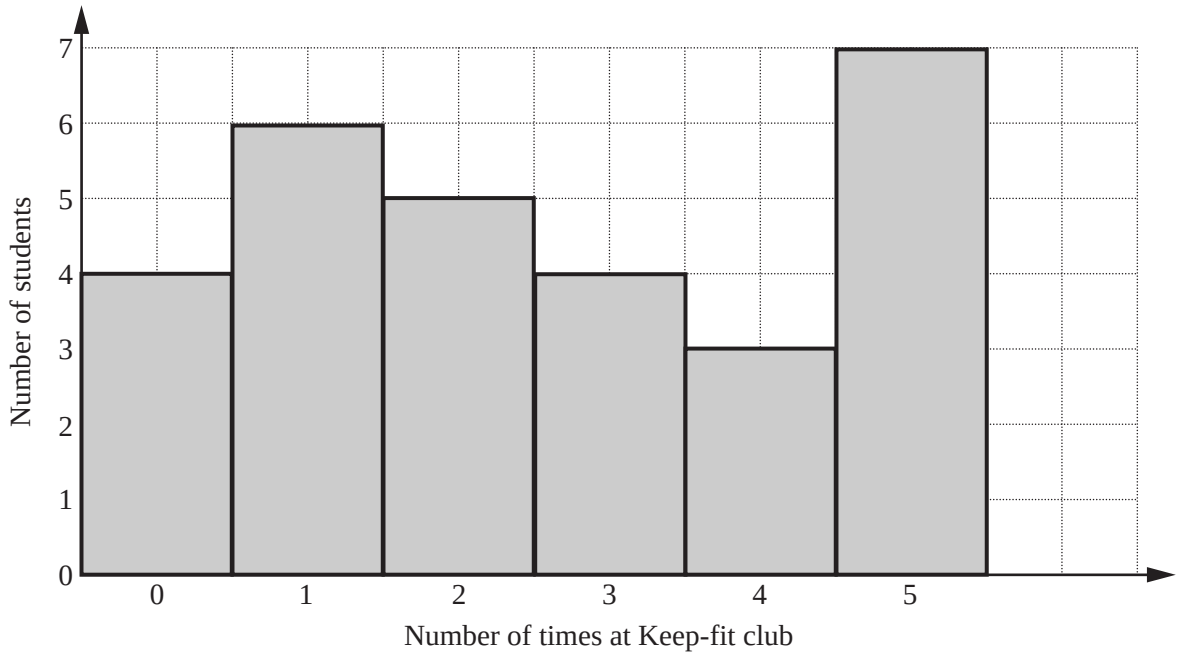
(c) _____ [1]

(d) two numbers with a difference of 15.

(d) _____ and _____ [1]

4

3 This bar chart shows the number of times that a group of year 11 students attended the keep-fit club in a 5 week period.



(a) How many students went to the club 3 times?

(a) _____ [1]

(b) How many went to the club more than 3 times?

(b) _____ [1]

(c) How many students were there in the group?

(c) _____ [2]

4

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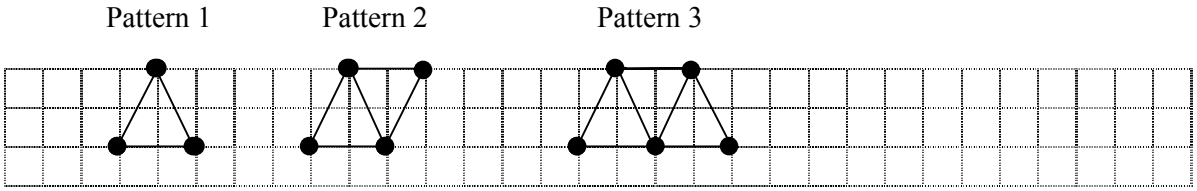
4 Sally is making patterns using dots and lines.



(a) Draw the next pattern on the grid. [1]

(b) Complete this table. [1]

Pattern	1	2	3	4	5
Number of dots	3	4	5		
Number of lines	3	5	7		

(c) For pattern 12, work out

(i) the number of dots,

(c)(i) _____ [1]

(ii) the number of lines.

(ii) _____ [1]

(d) Explain how you worked out

(i) the number of dots in pattern 12,

_____

_____ [1]

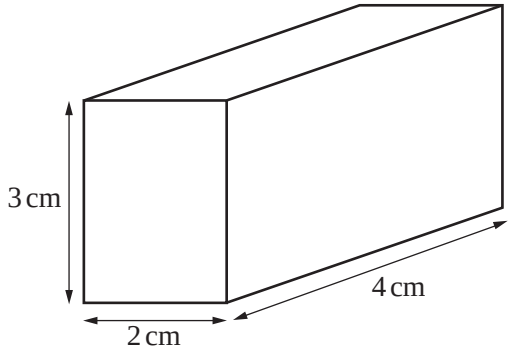
(ii) the number of lines in pattern 12.

_____

_____ [1]

6

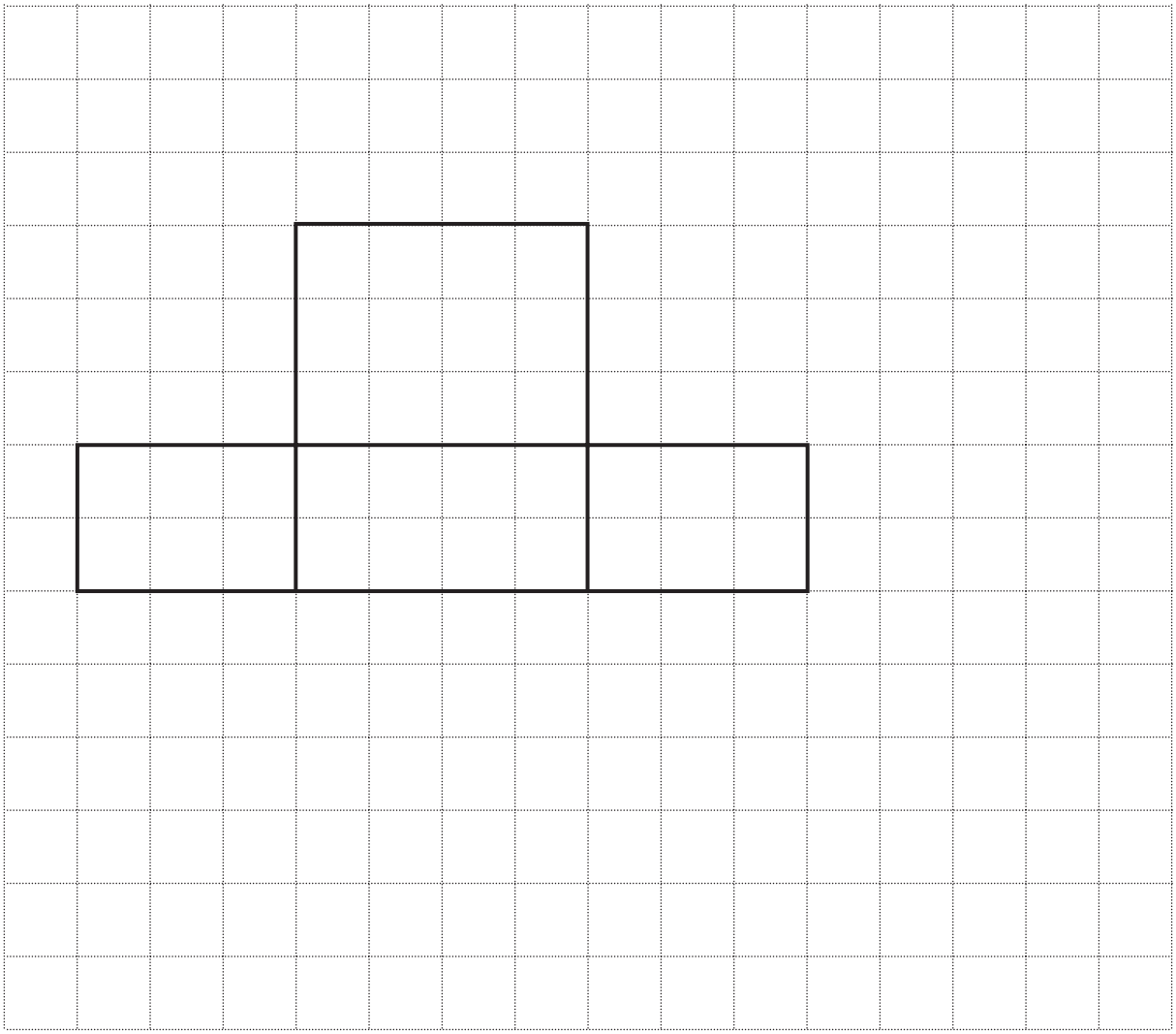
5 The diagram shows a cuboid.



(a) Work out the volume of the cuboid.

(a) _____ cm^3 [2]

(b) Complete a full-size net of the cuboid by drawing the other two faces.



[1]

3

6 The chart shows the temperature at midnight on 5 nights in Aberdeen.

Day	Mon	Tues	Wed	Thurs	Fri
Temperature °C	$^{-}5$	2	4	0	$^{-}3$

(a) **(i)** Write these temperatures in order, lowest first.

_____ [1]

(ii) What is the difference between the highest and lowest temperatures?

(ii) _____ °C [1]

(b) On Saturday night the temperature was 4°C higher than Friday night.

What was the temperature on Saturday night?

(b) _____ °C [1]

3

7 Solve these equations.

(a) $2x = 12$

(a) $x =$ _____ [1]

(b) $4x + 1 = 13$

(b) $x =$ _____ [1]

(c) $5x - 2 = 3x + 9$

(c) $x =$ _____ [2]

5

8 Farida is looking for a car to buy.
The car she likes is priced at £5600.
The hire purchase terms are

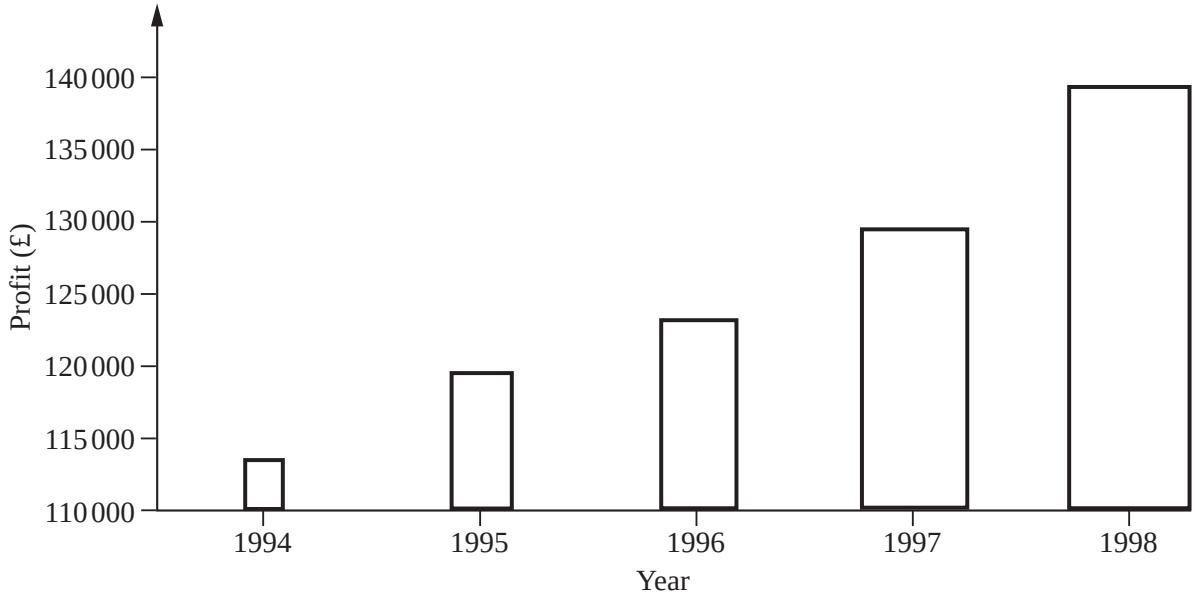
Deposit: $\frac{1}{4}$ of the purchase price
PLUS
36 monthly instalments of £175·50

Calculate how much she will pay altogether for the care on hire purchase.

£ _____ [5]

5

9 For this diagram, give two reasons why it might be misleading.



1 _____

_____ [1]

2 _____

_____ [1]

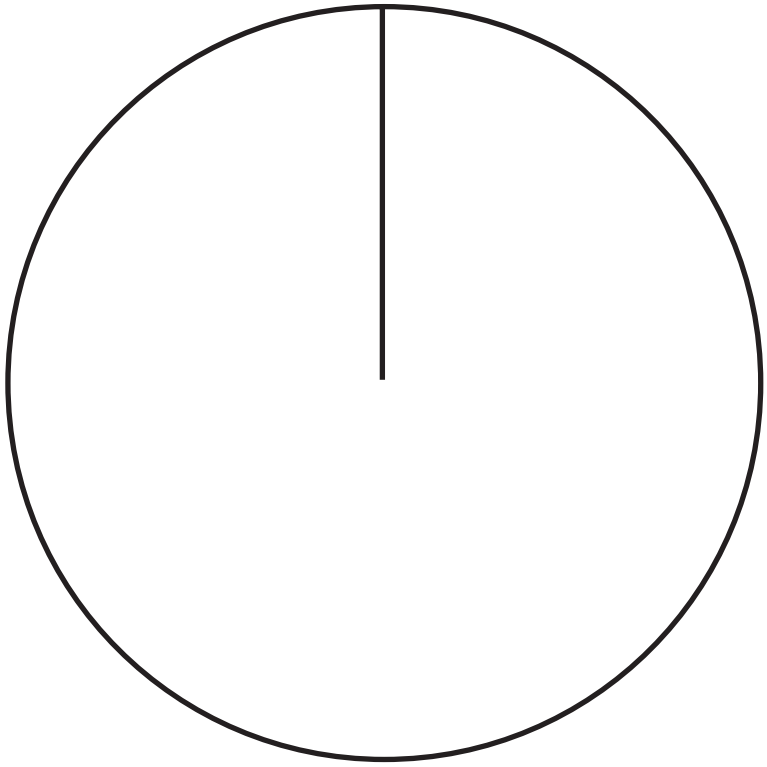
2

10 Yvonne recorded the makes of 50 cars that were parked on Edgedale Road.

These are her results.

Make of car	Number
Ford	12
Vauxhall	18
Rover	6
Toyota	5
Other	9

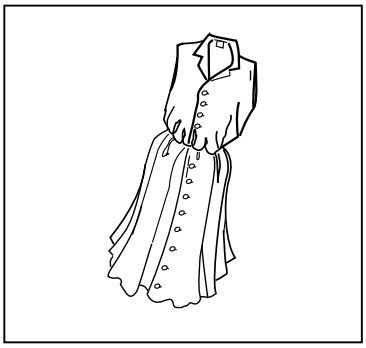
Draw and label a pie chart to illustrate this information. [3]



3

11 This dress was £200.
It is reduced by £70.

Work out the percentage reduction.



_____% [2]

2

12 **(a)** Mark drives 34 890 miles in a year.
He wants to know roughly how many miles this is per week.

Write down a calculation Mark could do in his head to **estimate** how many miles he drives each week.

(a) _____ = _____ miles [3]

(b) On Thursday Mark drives 132 km in 1 hour 30 minutes.

Calculate his average speed in kilometres per hour.

(b) _____ km/h [3]

6

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General Certificate of Secondary Education

Mathematics C (Graduated Assessment) 1966/2341B (F)

FOUNDATION TIER TERMINAL PAPER – SECTION B

Specimen Paper 2003

Additional materials:

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Geometrical instruments
Scientific calculator
Pie chart scale

TIME 1 hour

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For Examiners' Use	
Section B	

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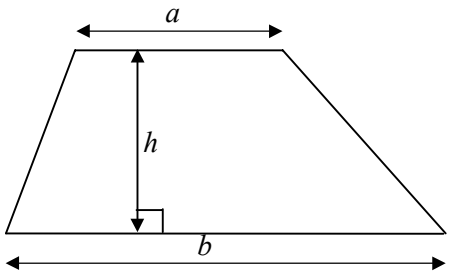
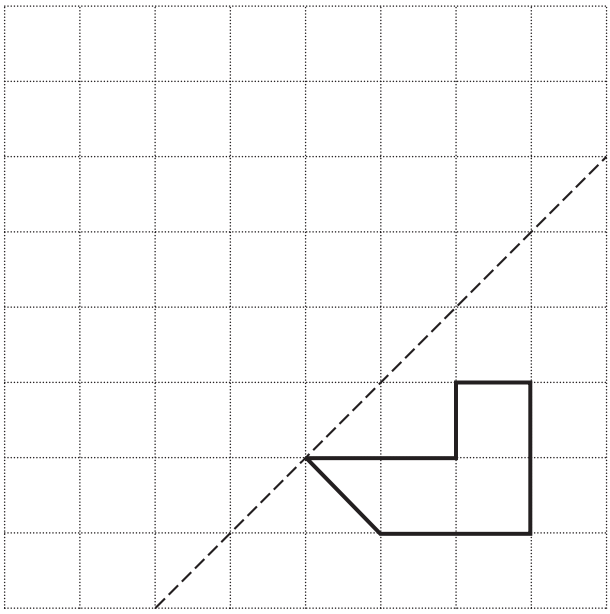
FORMULAE SHEET: FOUNDATION TIER

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

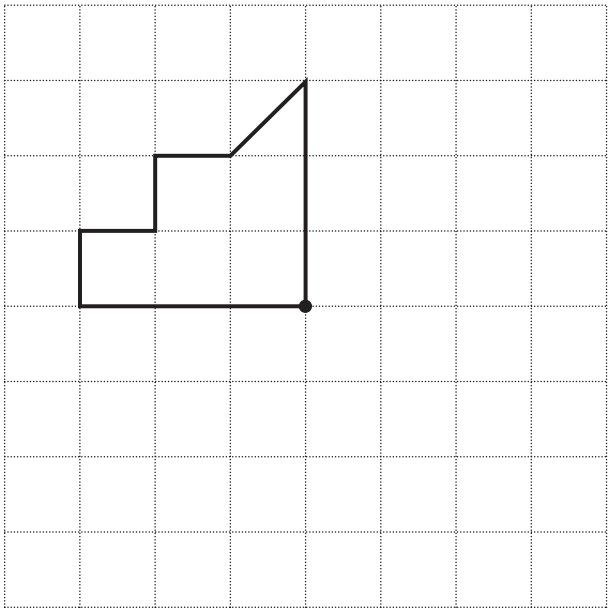


13 **(a)** Reflect this shape in the given line.



[2]

(b) Complete this pattern so it has a rotational symmetry of order 4.



[3]

5

14 **(a)** Charles has this number pattern.

1, 5, 9, 13, ____

Fill in the next number in his pattern. ____

Explain how you worked out your answer.

_____

_____ [1]

(b) Mary has this number pattern.

1, 2, 4, 8, ____

Explain how to work out the next number in Mary's pattern.

_____

_____ [1]

2

15 Kareem drives a taxi.
He uses this formula to work out his charge in pounds.

Divide the number of miles by 2 And then add 10

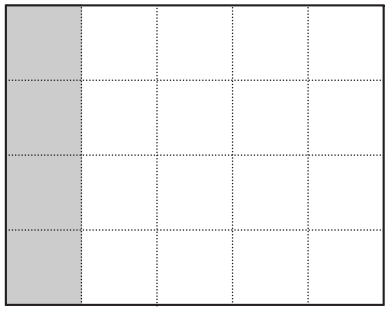
Work out Kareem's charge for a journey of 48 miles.

£ _____ [2]

2

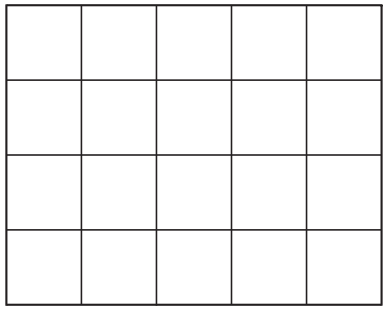
16 **(a)** What fraction of this shape is shaded?

Give your answer in its lowest terms.



(a) _____ [2]

(b) Shade $\frac{3}{4}$ of this shape.



(b) _____ [1]

3

17

Raymond went to the supermarket and bought these items.

3 jars of jam at £1·19 a jar
2·5 kg of turkey at £4·36 a kg
1 litre of milk at 49p.

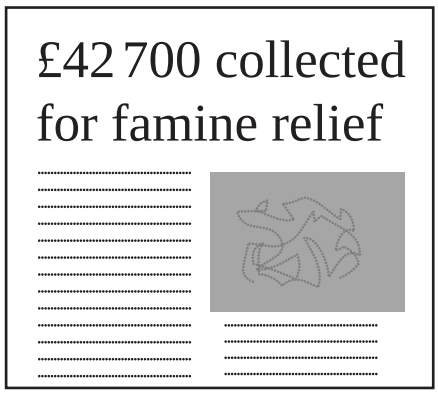
He paid with a £20 note.

How much change did he get?

£ _____ [4]

4

18



(a) Write £42 700 to the nearest thousand pounds.

(a) £ _____ [1]

(b) Local schools raised 32% of the money.

Work out 32% of £42 700.

(b) £ _____ [2]

3

19 Dave is selling flowers.

(a) Estimate the height of the lamp-post, in metres.

(a) _____ m [2]

(b) What metric units would you use for

(i) the height of a flower bucket,

(b)(i) _____ [1]

(ii) the weight of one flower?

(ii) _____ [1]

(c) Dave has 3 litres of water in his watering can.
He has four flower buckets.
He pours 50 millilitres of water into each bucket.

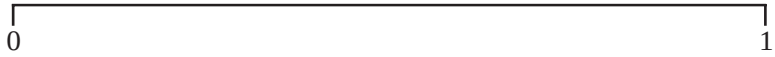
How many millilitres of water are left in the watering can?

(c) _____ ml [2]

6

20 Sue throws a fair six-sided dice with faces marked 1, 2, 3, 4, 5 and 6.

(a) Mark on the scale below the probability that she throws a 6.



[1]

(b) Mark on the scale below the probability that she throws a 7.

[1]

(c) The probability that she throws an odd number is marked on the scale below with a cross.

Explain why the cross is marked on the middle of the line.

_____

_____ [1]

3

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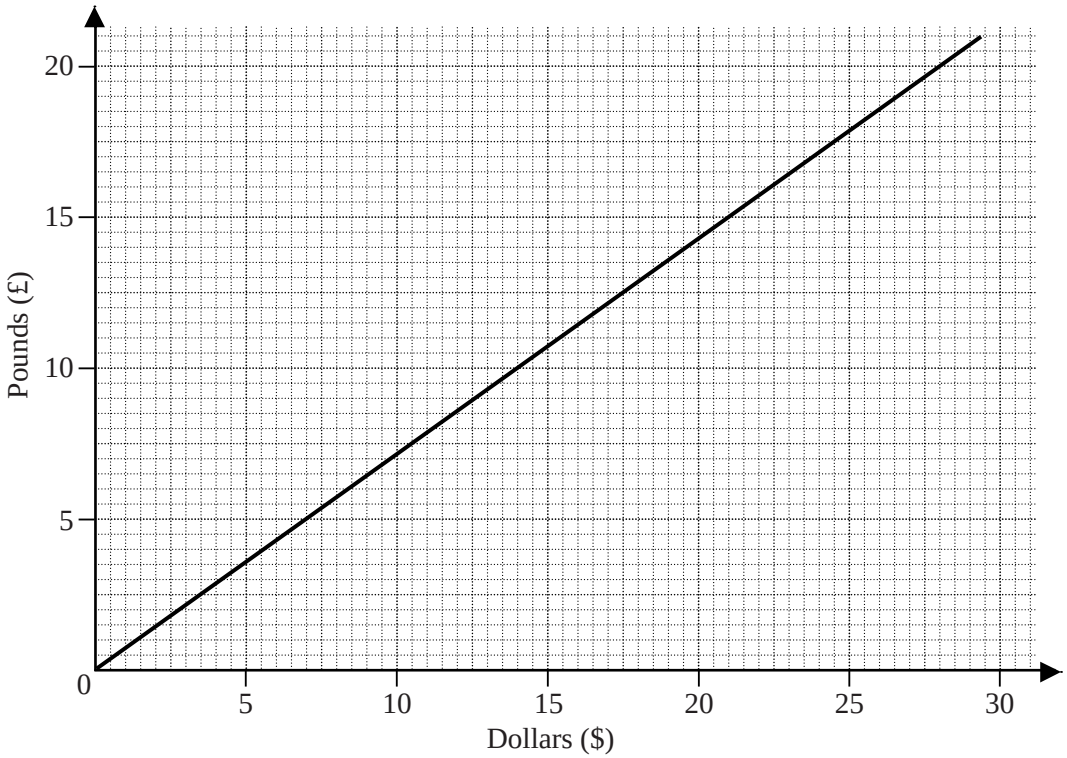
21 This conversion graph is for dollars ($) to pounds (£).



Use the graph to

(a) change £5 into dollars ($),

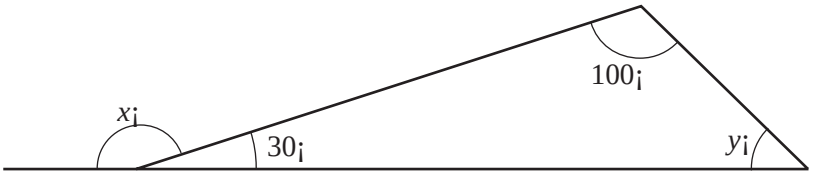
(a) $ _____ [1]

(b) change $17 into pounds (£).

(b) £ _____ [1]

2

22



(a) Work out the size of angle x.

(a) $x =$ _____ ° [1]

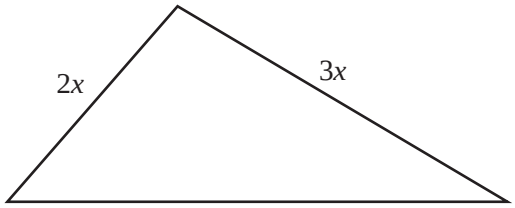
(b) Find the size of angle y.
Explain how you worked out your answer.

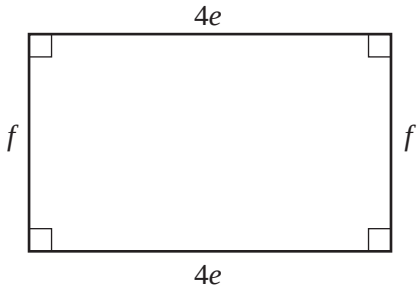
$y =$ _____ ° because _____

_____ [2]

3

23 Look at these shapes.





Write as simply as possible an expression for

(a) the perimeter of the triangle,

(a) _____ [1]

(b) the perimeter of the rectangle,

(b) _____ [2]

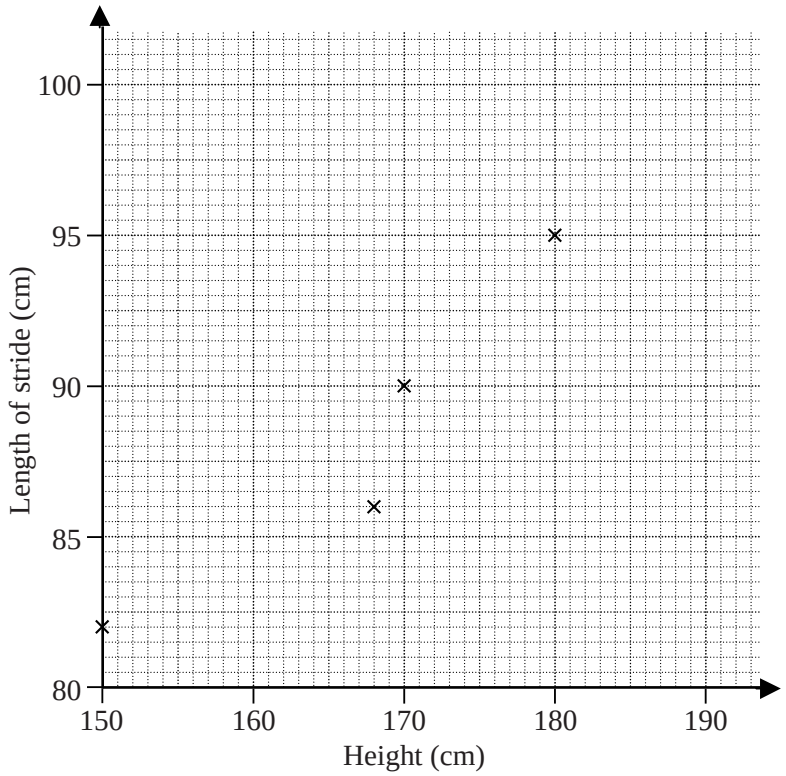
(c) the area of the rectangle.

(c) _____ [1]

4

24 Jackie recorded the heights and the lengths of the strides of 10 boys in her form.
These are the results.

Height (cm)	170	180	168	150	164	172	167	176	182	190
Length of stride (cm)	90	95	86	82	87	89	93	92	94	96



(a) Complete this scatter diagram to show these results.
The first four points have been plotted. [2]

(b) Comment on the relationship between the height and the length of stride of the ten boys.

_____

_____ [1]

3

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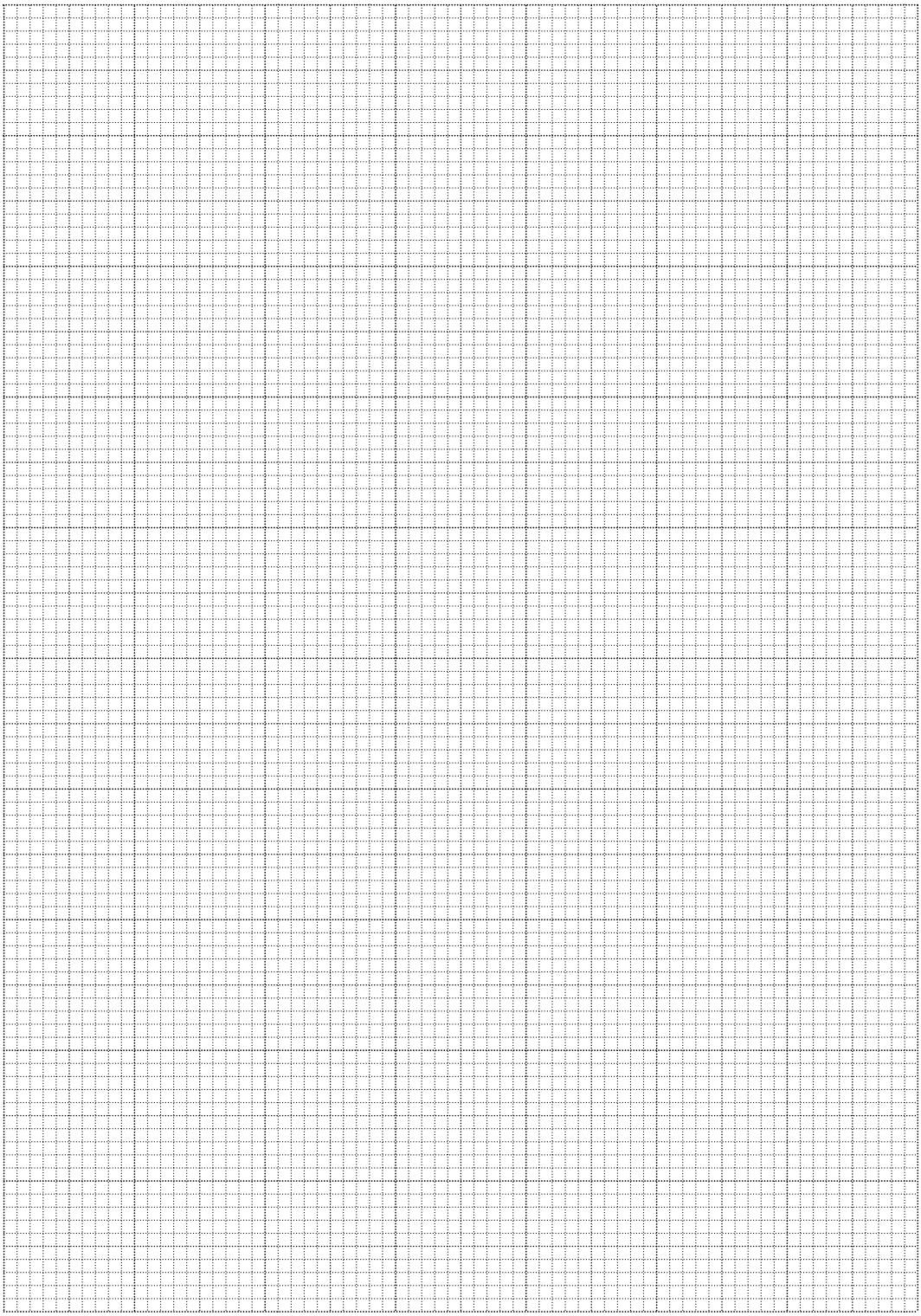
25 Draw the graph of $y = 3x - 2$ on the grid below. Use values of x from 0 to 5. [3]



3

26 Each year Brentwood School hold a sponsored swim.
The money raised is shared between two charities, A and B, in the ratio 5 : 1.

(a) In 1999 a total of £1800 was raised.

How much was given to charity A?

(a) £ _____ [2]

(b) In 2000 Charity A was given £1850.

How much was given to Charity B?

(b) £ _____ [2]

4

27 A circular picture frame has a piece of glass in front with radius 11 cm.

Work out the area of the glass.
Give your answer to a suitable degree of accuracy.

_____ cm^2 [3]

3

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General Certificate of Secondary Education

Mathematics C (Graduated Assessment) 1966/2341 (F)

FOUNDATION TIER TERMINAL PAPER

MARK SCHEME

Specimen Paper 2003

SECTION A

1	**(a)**	(2, 6)	W1	
	(b)	Hexagon	W1	
	(c)	4.2 – 4.4 cm	W2	W1 for cm, W1 for 4.2 – 4.4
	(d)	19 (cm)	W2	M1 for 3+3+2+4+BC+FC, A1 19
	(e)	$23\ \frac{1}{2}\,(\text{cm}^2)$	W2	M1 – area attempted; A1 $23\frac{1}{2}$
			[8]	
2	**(a)**	25 or 31 or 45	W1	
	(b)	16 or 25	W1	
	(c)	25 or 45	W1	
	(d)	16 (and) 31	W1	
			[4]	
3	**(a)**	4	W1	
	(b)	10	W1	
	(c)	29	W2	M1 4 + 6 + 5 + 4 + 3 + 7; A1 29
			[4]	
4	**(a)**	Pattern correct	W1	
	(b)	6, 7 and 9, 11	W1	
	(c)(i)	14	W1	
	(ii)	25	W1	
	(d)(i)	Explanation e.g. 12 + 2 = 14	W1	
	(ii)	Explanation e.g. Double 12 and add 1	W1	
			[6]	
5	**(a)**	24cm^3	W2	M1 $3 \times 2 \times 4$; A1 24
	(b)	Net correct	W1	
			[3]	
6	**(a)(i)**	–5, –3, 0, 2, 4	W1	
	(ii)	9	W1	
	(b)	1	W1	
			[3]	
7	**(a)**	6	W1	
	(b)	3	W1	
	(c)	$5\frac{1}{2}$	W2	M1 $2x = 11$
			[4]	

8		1400 6318 7718	W1 W3 W1 **[5]**	
9		Profit scale does not start at 0 Bars different widths	W1 W1 **[2]**	
10		Pie chart correct and labelled	W3 **[3]**	M1 24, 36, 12, 10, 18(%) or (86, 130, 43, 36, 65°) Or W2 3 sectors correct and labelled Or W2 4 or 5 sectors correct, not labelled.
11		35%	W2 **[2]**	Allow 1 for 70/200 seen
12	**(a)**	35 000 ÷ 50 = 700	W3	M1 for 35 000 or 50 M1 their 35 000 ÷ 50 or 52 A1 700
	(b)	88	W3 **[6]**	M1 for 132 ÷ 1 hour 30 min Or M2 132 ÷ 1.5

Section A total: 50

SECTION B

13	**(a)**	Correct reflection	W2	W1 for reflection in incorrect line.
	(b)	Correct diagram	W3	W2 for 2 correct sectors W1 for 1 correct sector.
			[5]	
14	**(a)**	(e.g.) add 4	W1	
	(b)	(e.g.) double	W1	
			[2]	
15		34	W2	M1 24; A1 34
			[2]	
16	**(a)**	$\frac{1}{5}$	W2	W1 $\frac{4}{20}$
	(b)	15 squares shaded	W1	
			[3]	
17		£5.04	W4	M1 3.57 or 10.9(0) Or M2 3.57 + 10.90 + 0.49 Or W3 14.96 A1 5.04, f.t. their 14.96
			[4]	
18	**(a)**	43000	W1	
	(b)	13664	W2	M1 0.32×42700
			[3]	
19	**(a)**	4 – 5.5 m	W2	W1 for 3 – 6 m
	(b)(i)	Centimetres or millimetres	W1	
	(ii)	Grams	W1	
	(c)	2800	W2	M1 3000 – their 200
			[6]	
20	**(a)**	Mark 0.5 – 1.5 cm from 0	W1	
	(b)	Mark at 0	W1	
	(c)	Explanation e.g. same number of odd and even	W1	
			[3]	

21	**(a)**	\$7	W1	
	(b)	£12 – £12.50	W1	
			[2]	
22	**(a)**	150	W1	
	(b)	50 because e.g. sum of angles of a triangle is 180°	W1 W1	
			[3]	
23	**(a)**	$9x$	W1	
	(b)	$8e + 2f$	W2	W1 for $4e + f + 4e + f$
	(c)	$4ef$	W1	
			[4]	
24	**(a)**	6 points plotted	W2	W1 4 or 5 correct
	(b)	e.g. Greater the height the greater the stride length	W1	
			[3]	
25		Straight line through (0, –2), (3, 7)	W3	M1 2 correct points M2 3 correct points
			[3]	
26	**(a)**	£1500	W2	M1 300 or 1800 ÷ 6
	(b)	£370	W2	M1 1850 ÷ 5
			[4]	
27		380	W3	M1 $\pi \times 11 \times 11$ Or W2 380.1(…)
			[3]	

Section B total: 50

Total mark available: 100

Paper 1966 Specimen Foundation Terminal

Question	Topic	NC ref	Module ref	Number	Manip Alg	Other Alg	Shape	Data	UA1	UA2	UA3	Multistep	Accuracy	Units	Grade G	Grade F	Grade E	Grade D*	Common to intermediate
1	Shape	F3/1f, 4a, 4f, 3e	A1.3, S1.4, S1.5				8							1	8				
2	Number properties	F2/2a, 2b	N1.4, N4.5	4											4				
3	Bar chart	F4/5b	D3.3					4							4				
4	Number patterns	F2/1j, 6a	A2.1			6					2				2	4			
5	Cuboid	F3/4d, 4g	S5.4				3									3			
6	Temperature	F2/3q	N3.1	3												3			
7	Equations	F2/5e	A5.1		4											1	1	2	3
8	Calculation	F2/3d, 3k, 1b	N5.4	5					5			5					5		5
9	Misleading diagram	F4/1g, 5b	N4.3					2		2								2	2
10	Pie chart	F4/5b	D5.3					3									3		
11	% reduction	F2/3m	N5.5	2														2	
12(a)	Estimation	F2/3h	N5.1	3													3		3
12(b)	Speed	F2/4a	S4.8	3														3	3
			Section A total	**20**	**4**	**6**	**11**	**9**							**18**	**11**	**12**	**9**	**16**
13	Symmetry	F3/3a, 3b	S2.5, S5.7				5								2		3		3
14	Number pattern	F2/1j, 6a	A1.1			2				2					2				
15	Use formula	F2/5a	A2.2			2									2				
16	Fraction	F2/3g	N3.6	3											3				
17	Money calculation	F2/3a, 1b	N1.4, N4.1	4					4			4			4				
18(a)	Rounding	F2/2a	N5.1	1											1				
18(b)	Percentage	F2/3m	N5.4	2												2			
19(a)	Estimating length	F3/4a	S2.1				2								2				
19(bc)	Measurement units	F3/4a	S2.1, S2.2, S3.3				4									4			
20	Probability scale	F4/1h, 4c	D2.1					3			1					3			
21	Conversion graph	F2/6c	A3.3			2										2			
22	Angles	F3/1i, 2a, 2c	S4.1				3				1						3		
23	Form expression	F2/5f	A4.2		4												4		3
24	Scatter diagram	F4/1l, 4a	D6.2					3		1								3	3
25	Straight line graph	F2/6b	A4.3			3			3			3						3	
26	Ratio	F2/3d	N6.3	4														4	4
27	Circles	F3/4h, 1e	S6.2				3			1								3	3
			Section B total	**14**	**4**	**9**	**17**	**6**	**7**	**4**	**2**	**7**			**16**	**11**	**10**	**13**	**16**
			Total	**34**	**8**	**15**	**28**	**15**	**12**	**6**	**4**	**12**	**1**	**1**	**34**	**22**	**22**	**22**	**32**

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