For **AQA**

Mathematics

Paper 1 (Non-Calculator)

Foundation Tier

Churchill Paper 1C – Marking Guide

Method marks (M) are awarded for a correct method which could lead to a correct answer

Accuracy marks (A) are awarded for a correct answer, having used a correct method, although this can be implied

(B) marks are awarded independent of method

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Churchill Paper 1C Marking Guide – AQA Foundation Tier

1 –11ºC –5ºC (5ºC) 11ºC B1 Total 1

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2 50% of 180 = 180 ÷ 2 = 90
25% of 180 = 90 ÷ 2 = 45 kg

36kg 40kg (45kg) 48kg B1 Total 1

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3 = 60 + 45 = 105 minutes

75 95 (105) 145 B1 Total 1

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4 **(a)** ($8p^2$) $6p^2$ $16p$ $8p$ B1

(b) $5y < 15$ M1
$y < 3$ A1 Total 3

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5 **(a)** 4Fur: 4 + 9 = 13
Petsus: 6 + 3 = 9
Paws: 6 + 7 = 13
Animalz: 8 + 6 = 14 Animalz has the most staff B1

(b) $= \frac{3}{6+3} = \frac{3}{9}$ $[= \frac{1}{3}]$ B1

(c) Full-time = 4 + 6 + 6 + 8 = 24
Part-time = 9 + 3 + 7 + 6 = 25 M1
More part-time than full-time so more than half are part-time
Esme is correct A1 Total 4

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6 **(a)** e.g. 1005 – 70 = 935
1005 – 69 = 936 B1

(b) = 40 ÷ 2 M1
= 20 A1

(c) e.g.

	228
50 × 3	150
	78
20 × 3	60
	18
6 × 3	18

228 ÷ 3 = 50 + 20 + 6 = 76 M1 A1 Total 5

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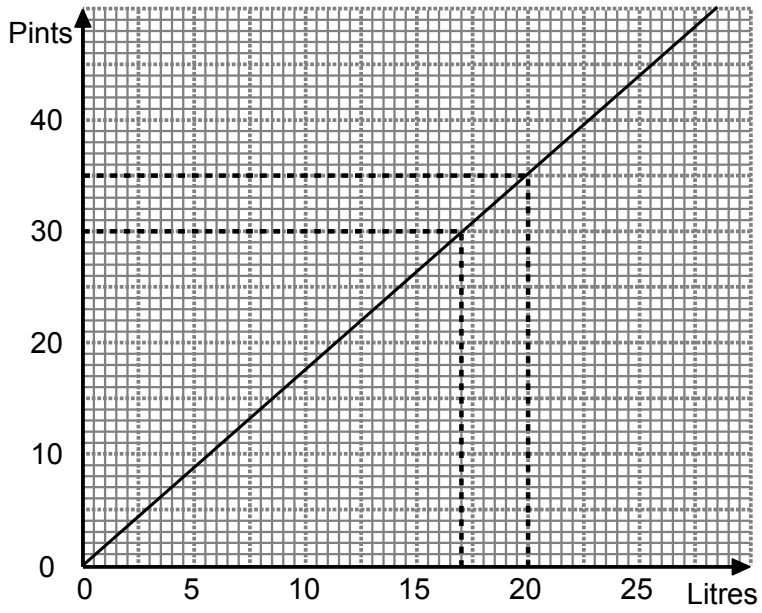
7 91 = 7 × 13

71 79 (91) 97 B1 Total 1

8	**(a)**	$\frac{2}{5}$	B1	
	(b)	$\frac{3}{5}$	B1	
	(c)	0	B1	Total 3

9	**(a)**	Acute angle = 180 – 120 = 60º *a* = 360 – 60 = 300	M1 A1	
	(b)	81 + 45 = 126º 360 – 126 = 234º *b* = 234 ÷ 2 = 117	 M1 A1	Total 4

10 **(a)**



20 litres ≈ 35 pints B1

(b) e.g. 30 pints ≈ 17 litres
60 pints ≈ 2 × 17 = 34 litres M1 A1

(c) It is a straight line through the origin (0, 0) B1 Total 4

11	**(a)**	If £50 was the smallest amount, the largest amount would be 200 × £50 = £10000 The largest amount that could have been in box C is £10000	 M1 A1	
	(b)	If £300 was the largest amount, the smallest amount would be £300 ÷ 200 = £1.50 The middle amount would be 10 × £1.50 = £15 £300 + £15 + £1.50 = £316.50 The smallest total amount would be £316.50	 M1 A1	Total 4

12 **(a)** 8 B1

(b) = 3 + 7 = 10 B1

(c) They have been on holiday in the UK but not been on holiday abroad in the last year B1

(d) e.g. As half had been on holiday in the UK, the number who had been on holiday in the UK must equal the number who had not, so:
$N + 3 = 7 + 8$ M1
$N + 3 = 15$
$N = 12$ A1

[OR: $N + 3 = \frac{1}{2}(N + 3 + 7 + 8)$ and solve] Total 5

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13 **(a)** $81 \times 58.15 \approx 80 \times 60$ M1
$= £4800$ A1

(b) Increase $\approx 4800 - 4000 = £800$
% increase $\approx \frac{800}{4000} \times 100\%$ M1
$= \frac{1}{5} \times 100\% = 20\%$ A1 Total 4

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14 32 38 46 50 56 59

Median $= \frac{1}{2}(46 + 50) = 48$

If e.g. 46 becomes 60 new median $= \frac{1}{2}(50 + 56) = 53$, up 5

If e.g. 50 becomes 30 new median $= \frac{1}{2}(38 + 46) = 42$, down 6

Largest change = 6

4 5 (6) 6.5 B1 Total 1

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15 10% of 50 = 5; 40% of 50 = 4 × 5 = 20 go into 2nd round
25% of 20 = 20 ÷ 4 = 5; 75% of 20 = 3 × 5 = 15 go into 3rd round M1
9 go into 4th round so fraction of wins in 3rd round $= \frac{9}{15} = \frac{3}{5}$ M1

Percentage wins in 3rd round $= \frac{3}{5} \times 100\%$
$= 3 \times 20\% = 60\%$ A1 Total 3

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16 e.g. Width of strips $= \frac{1}{4}$ of side length of the original square
Length of strips = side length of the original square
So ratio of length to width of strips is 4 : 1 M1
10 cm is made up of 1 length and 1 width
We need to divide 10 cm in the ratio 4 : 1
4 + 1 = 5
10 ÷ 5 = 2 M1
Width of strips = 2 cm
Side length of original square = 4 × 2 = 8 cm
Area of card = $8^2 = 64$ cm^2 M1 A1 Total 4

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17 **(a)** $= \frac{1}{2} \times \frac{7}{4}$ M1

$= \frac{7}{8}$ A1

(b) $= \frac{\cancel{12}}{5} \times \frac{15}{\cancel{4}}$ M1

$= \frac{3}{\cancel{5}} \times \frac{\cancel{15}}{1}$

$= \frac{3}{1} \times \frac{3}{1}$

$= 9$ M1 A1 Total 5

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18 **(a)** $= 9 - 2$ M1

$= 7$ A1

(b) e.g. $7^2 \times 7^2 = 7^4$ M1

So $\sqrt{2401} = \sqrt{7^4} = 7^2 = 49$ A1 Total 4

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19 **(a)** $45.99 \div 3 = 15 + 0.33 = £15.33$ M1

$45.99 - 15.33 = £30.66$ A1

(b) $\frac{2}{3}$ of usual price = £48

$\frac{1}{3}$ of usual price $= 48 \div 2 = £24$ M1

Usual price $= 3 \times 24 = £72$ A1 Total 4

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20 **(a)** $y = x^3$ B1

(b) $y = \frac{1}{x}$ B1 Total 2

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21 Gradient of $L = \frac{2-0}{(-3)-0} = -\frac{2}{3}$

Gradient of options is m in $y = mx + c$

Gradients = $-\frac{2}{3}$ $\frac{2}{3}$ $-\frac{3}{2}$ $\frac{3}{2}$

Parallel so same gradient, hence $y = 4 - \frac{2}{3}x$

$y = 4 - \frac{2}{3}x$ $y = \frac{2}{3}x - \frac{1}{3}$ $y = 2 - \frac{3}{2}x$ $y = \frac{3}{2}x + 1$ B1 Total 1

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22 Let the number of fourspots used be x

She will have used $3x$ twospots and $2x$ eightspots

The numbers she has left will be: twospot: $300 - 3x$

fourspot: $300 - x$ M1

eightspot: $300 - 2x$

Hence, $300 - x = 2(300 - 3x)$ M1

$300 - x = 600 - 6x$

$5x = 300$

$x = 60$

Number of eightspots left $= 300 - (2 \times 60) = 300 - 120 = 180$ A1 Total 3

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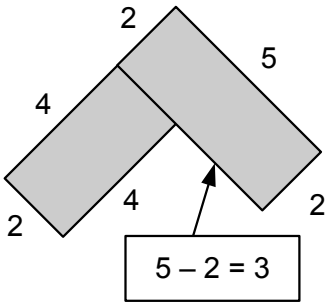
23 **(a)**



M1

Perimeter = 2 + 4 + 2 + 5 + 2 + 3 + 4 = 22 cm A1

(b) $= 11^2 + (7 \times 11) + 4 = 121 + 77 + 4 = 202$ cm B1

(c) $n^2 + 7n + 4 = 82$ M1
$n^2 + 7n - 78 = 0$
$(n + 13)(n - 6) = 0$ M1
$n = -13$ or 6
Stage number must be positive so stage 6 A1 Total 6

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24 $4^{-1} = \frac{1}{4}$, $1^5 = 1$, $3^{-3} = \frac{1}{27}$, $6^0 = 1$, $2^2 = 4$

(a) 2^2 B1

(b) 3^{-3} B1

(c) 1^5 and 6^0 B1 Total 3

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25 Common difference = 6 so nth term = $6n + c$
0^{th} term = 12 – 6 = 6
nth term = $6n + 6$

$18n - 6$ $12n + 6$ $6n - 6$ $6n + 6$ B1 Total 1

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26 e.g.

	$2x + y = 13$	(1)
	$3x - y = 2$	(2)
(1) + (2)	$5x = 15$	M1
	$x = 15 \div 5 = 3$	M1
Sub (1)	$6 + y = 13$	
	$y = 13 - 6 = 7$	

So, $x = 3$ and $y = 7$ A1 Total 3

TOTAL FOR PAPER: 80 MARKS