For **AQA**

Mathematics

Paper 1 (Non-Calculator)

Foundation Tier

Churchill Paper 1A – 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

Written by Shaun Armstrong

Churchill Paper 1A Marking Guide – AQA Foundation Tier

1	$5 \times 60 = 300$						
	200	300	360	3000		B1	Total 1
2	11	12	13	14		B1	Total 1
3	radius	chord	tangent	arc		B1	Total 1
4	$2.8 \div 0.7 = 28 \div 7 = 4$						
	0.04	0.4	4	40		B1	Total 1
5	**(a)**	$4p$				B1	
	(b)	$7m + 3n$				B2	Total 3
6	**(a)**	10				B1	
	(b)	No. who chose Dog = 12					
		Total number = 12 + 10 + 5 + 3 + 4				M1	
		= 34					
		$34 \div 3 = 11\frac{1}{3}$				M1	
		12 is more than $11\frac{1}{3}$ so Mona is correct				A1	Total 4
7	e.g.	A hot dog with cheese costs £2.95					
		$7 \times £2.95 = 7 \times £3 - 7 \times 5p$				M1	
		= £21 – 35p					
		= £20.65					
		They can't afford 7 hot dogs with cheese but they can afford 6				A1	
		A hot dog costs £2.80					
		$7 \times £2.80 = 7 \times £3 - 7 \times 20p$					
		= £21 – £1.40					
		= £19.60				M1	
		They can afford 7 hot dogs					
		By not having the cheese they can afford an extra hot dog					
		Lennie is correct				A1	Total 4

8 **(a)** 2.7 + **0.85** = 3.55 B1

(b) $\frac{2}{5} = \frac{4}{10}$

So $\frac{2}{5} - \frac{\mathbf{1}}{\mathbf{10}} = \frac{3}{10}$ B1

(c) 4 × 3 = 12

So 4 × **0.03** = 0.12 B1 Total 3

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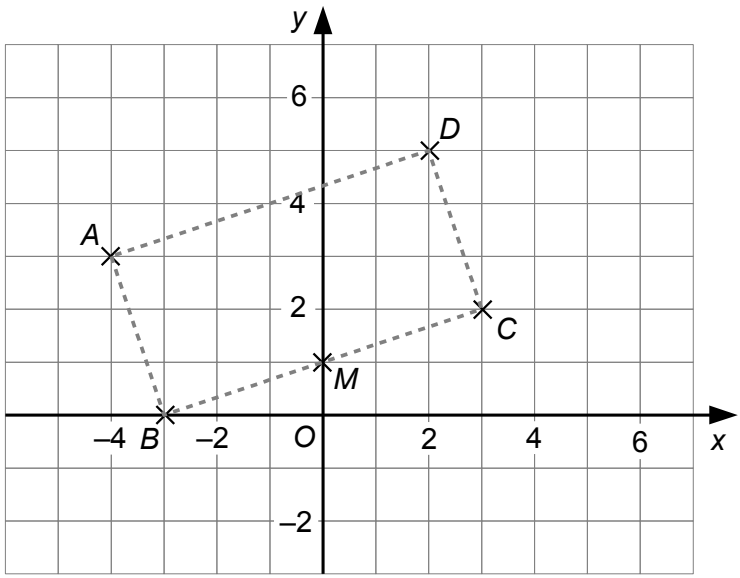
9 **(a)** (–4, 3) B1

(b)



B1

(c) *[e.g. rectangle completed on grid]* M1

(2, 5) A1 Total 4

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10 **(a)** 2 B1

(b) = 25 + 64 + 81 M1

= 89 + 81

= 170 A1 Total 3

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11 ~~2~~ ~~4~~ ~~4~~ ~~4~~ (6) ~~7~~ ~~8~~ ~~8~~ ~~9~~

4 5 6 6.5 B1 Total 1

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12 *AB* = *BD* so triangle *ABD* is isosceles
Hence, angle *BDA* = angle *BAD* = 34º — M1
Angles in a triangle add up to 180º
So angle *ABD* = 180 – 34 – 34 = 112º — M1
Angles on a straight line add up to 180º
So angle *CBD* = 180 – 112 = 68º
BD = C*D* so triangle *BCD* is isosceles
Hence, angle *BCD* = angle *CBD* = 68º
Angles in a triangle add up to 180º
So angle *a* = 180 – 68 – 68 = 44º — M1 A1 — Total 4

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13 $3\frac{1}{2}$ × £10 = £35

$3\frac{1}{2}$ × 60p = £1.80 + £0.30 = £2.10

$3\frac{1}{2}$ × £10.60 = £35 + £2.10 = £37.10

£31.80 £35.30 £36.80 £37.10 — B1 — Total 1

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14 **(a)** = 4.7 – 1.5 = 3.2 — B1

(b) 5*y* = 2*y* + 18
3*y* = 18 — M1
y = 6 — A1 — Total 3

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15 **(a)** e.g. She can not be sure of this because 10 is a very small number of trials — B1

(b) No. of times red bead picked = 7 + 6 + 8 + 6 = 27 — M1
No. of trials = 40
P(Faria picks a red bead) = $\frac{27}{40}$ — A1 — Total 3

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16 Area of cross-section of block = $\frac{1}{2}$ × 6 × 6 — M1
= 18 cm^2 — A1
Area of cross-section of house = 5 × 18 = 90 cm^2
Volume of house = 90 × *L* = 990
L = 990 ÷ 90 — M1
= 99 ÷ 9
= 11 — A1
Length of block = 11 cm — Total 4

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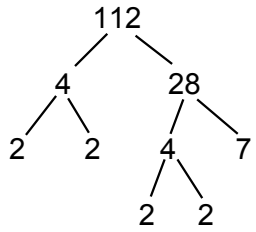
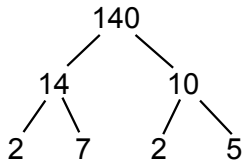
17 **(a)** e.g.



M1

$112 = 2^4 \times 7$ A1

(b) e.g.



$140 = 2^2 \times 5 \times 7$

HCF $= 2^2 \times 7$ M1
$= 28$ A1 Total 4

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18 **(a)** $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$ B1

(b) $4\mathbf{a} = \begin{pmatrix} 4 \\ 8 \end{pmatrix}$ M1

$4\mathbf{a} - \mathbf{b} = \begin{pmatrix} 4 \\ 8 \end{pmatrix} - \begin{pmatrix} 3 \\ -1 \end{pmatrix} = \begin{pmatrix} 1 \\ 9 \end{pmatrix}$ A1 Total 3

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19 **(a)** 1 chain costs 180 ÷ 20 = £9
1 bead costs 750 ÷ 500 = £1.50 M1
1 spacer costs 90 ÷ 100 = £0.90
1 heart charm costs 120 ÷ 30 = £4

Total = 9 + (8 × 1.50) + (4 × 0.90) + 4 M1
= 9 + 12 + 3.60 + 4
= £28.60 A1

(b) Profit on 1 bracelet = 39.90 – 28.60 = £11.30
Profit on 15 bracelets = 15 × 11.30 M1
= 10 × 11.30 + 5 × 11.30
= 113 + 56.50
= £169.50 A1 Total 5

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20 2 6 18 54
× 3 × 3 × 3 Next term = 3 × 54 = 162

72 162 166 2916 B1 Total 1

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21 500 – 100 = 400
400 ÷ 2 = 200
So there are 200 girls and 300 boys in the club — B1
10% of 500 = 50
20% of 500 = 100, so there are 100 more child members
16% of 100 = 16
16% of 300 = 3 × 16 = 48, so there are 48 more boys — M1
100 – 48 = 52, so there are 52 more girls
% increase in no. of girls = $\frac{52}{200}$ × 100% — M1
= $\frac{52}{2}$ % = 26% — A1 — Total 4

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22 **(a)** $-2 < x \leq 7$ — B1

(b) $2N < 30 \rightarrow N < 15$ — M1
$3N > 40 \rightarrow N > 13\frac{1}{3}$
N is between $13\frac{1}{3}$ and 15
As N is a whole number, $N = 14$ — A1 — Total 3

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23 Last week = 100%
This week = 120% = 240
So, 10% = 240 ÷ 12 = 20 — M1
100% = 10 × 20 = 200 — A1
Leanne sent 200 emails last week — Total 2

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24 **(a)** Jeremy marks 1 homework in 60 ÷ 12 = 5 minutes — M1
Kira marks 1 homework in 120 ÷ 30 = 4 minutes
Liz marks 1 homework in 6 minutes
Therefore Kira is the quickest — A1

(b) In 20 minutes Jeremy marks 4 homeworks
and Kira marks 5 homeworks
Together they mark 9 homeworks in 20 minutes — M1
36 ÷ 9 = 4 so they take 4 × 20 = 80 minutes — M1
4.30 pm + 80 minutes = 5.30 pm + 20 minutes = 5.50 pm — A1
They finish marking at 5.50 pm — Total 5

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25 Area of rectangle = 10 × 18 = 180 cm^2 — B1
Four quarter-circles have the same area as one whole circle
Radius = 10 ÷ 2 = 5 cm
Area of circle = $\pi \times 5^2 = 25\pi$ cm^2 — M1
Shaded area = $180 - 25\pi$ cm^2 — A1 — Total 3

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26 2 + 3 = 5
600 ÷ 5 = 120
2 × 120 = 240

120	200	240	250	B1	Total 1

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27 The angles in a triangle add up to 180º so

$4x + 3x + 20 + 5x - 8 = 180$	M1	
$12x + 12 = 180$		
$12x = 168$		
$x = 14$	A1	
$4x = 56$, $3x + 20 = 62$ and $5x - 8 = 62$	M1	
As angle ABC = angle ACB the triangle is isosceles The two sides opposite the equal angles are the same length Hence, $AB = AC$	A1	Total 4

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28 Let a baguette cost £b and a roll cost £r

So,	$3b + 2r = 3$	(1)		
	$b + 4r = 2$	(2)		
2 × (1)	$6b + 4r = 6$	(3)	M1	
(3) – (2)	$5b = 4$			
	$b = 4 \div 5 = 0.8$		M1	
Sub (2)	$0.8 + 4r = 2$			
	$4r = 1.2$			
	$r = 1.2 \div 4 = 0.3$			
So a baguette costs £0.80 which is 80p and a roll costs 30p			M1	
Lee pays 2 × 80p + 5 × 30p = £1.60 + £1.50 = £3.10			A1	Total 4

TOTAL FOR PAPER: 80 MARKS

