For **AQA**

Mathematics

Paper 1 (Non-Calculator)

Foundation Tier

Churchill Paper 1B – 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 1B Marking Guide – AQA Foundation Tier

1 50 (51) 52 53 B1 Total 1

2
350 mm = 35 cm
8.5 cm = 8.5 cm
0.1 m = 10 cm
0.01 km = 10 m = 1000 cm

350 mm (8.5 cm) 0.1 m 0.01 km B1 Total 1

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3 **(a)** 0.1 9 (10) 100 B1

(b) (–64) –12 64 81 B1

(c) e.g. $10 \times 37 = 370$
$20 \times 37 = 740$
$19 \times 37 = 740 - 37 = 703$ M1 A1 Total 4

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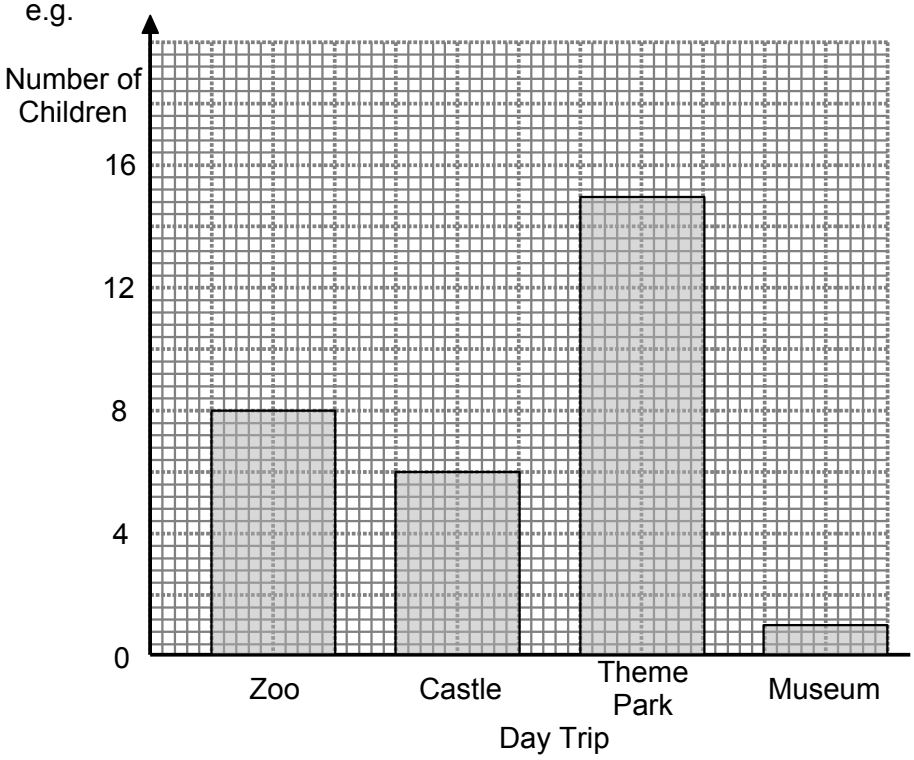
4 e.g.



Linear scale on vertical axis M1
Labels and bars M1
Accurate with scale and labels A1 Total 3

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5 **A** **B** (**C**) **D** B1 Total 1

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6 **(a)** $= 2 \times 36 = 72$ B1

(b) $= 3^3 = 27$ M1 A1 Total 3

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7 **(a)** Trapezium B1

(b) Isosceles (triangle) B1

(c) Angle *BAC* = 180 – 95 – 51 = 34°
[Angles in a triangle add up to 180°]
Angle *ACD* = 34° M1
[Alternate angles are equal]
$x = \frac{1}{2}(180 - 34) = \frac{1}{2} \times 146 = 73°$ M1 A1
[Base angles of isosceles triangle are equal] Total 5

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8 **(a)** e.g. Each section has the same probability of being stopped on B1

(b)

Second Spinner

First Spinner	1	2	3	4	5
1	2	3	4	5	6
2	3	4	5	6	7
3	4	5	6	7	8

M1 A1

(c) $\frac{3}{15}$ $[= \frac{1}{5}]$ B1

(d) $\frac{6}{15}$ $[= \frac{2}{5}]$ B1 Total 5

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9 10% of 82 = £8.20
30% of 82 = 3 × 8.2 = £24.60
Sale price = 82 – 24.60 = £57.40

£24.60 £54.33 £57.40 £65.40 B1 Total 1

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10 $\frac{1}{9}$ of 27 = 27 ÷ 9 = 3
$\frac{5}{9}$ of 27 = 5 × 3 = 15 M1
$\frac{1}{8}$ of 44 = 44 ÷ 8
$40 \div 8 = 5$ and $4 \div 8 = \frac{1}{2}$ so $44 \div 8 = 5\frac{1}{2}$ M1
$\frac{3}{8}$ of $44 = 3 \times 5\frac{1}{2} = 15 + 1\frac{1}{2} = 16\frac{1}{2}$ M1

So $\frac{3}{8}$ of 44 is larger A1 Total 4

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11 $0.04 = \frac{4}{100}$ M1

Reciprocal of $0.04 = \frac{1}{\left(\frac{4}{100}\right)} = \frac{100}{4}$

$= 25$ A1 Total 2

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12 $7 + 4 = 11$ portions
$55 \div 11 = 5$ hours per portion
$7 \times 5 = 35$ hours of badminton M1
$4 \times 5 = 20$ hours of basketball
Income $= 35 \times 15 + 20 \times 18$ M1
$35 \times 15 = 350 + 350 \div 2$
$= 350 + 175$
$= 525$
Income $= 525 + 360$
$= £885$ A1 Total 3

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13 e.g. Area of rectangle $= 7 \times 5 = 35\ m^2$
Top of triangle $= 8 - 5 = 3$ m
Left side of triangle $= 7 - 3 = 4$ m
Area of triangle $= \frac{1}{2} \times 3 \times 4 = 6\ m^2$ M1
Area to become lawn $= 35 + 6 = 41\ m^2$ A1
$3 \times 14 = 42\ m^2$ so 3 lots of grass seed needed
Fertilise twice so $2 \times 41 = 82\ m^2$ M1
$3 \times 30 = 90\ m^2$ so 3 lots of fertiliser needed
Total cost $= 3 \times £6.50 + 3 \times £2.80$ M1
$= £19.50 + £8.40$
$= £27.90$ A1 Total 5

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14 $2 + 3 = 5$ No
$1 + 4 = 5$; $4 + 5 = 9$; $5 + 9 = 14$ No
$2 + 7 = 9$; $7 + 9 = 16$; $9 + 16 = 25$ Yes
$1 + 2 = 3$ No

2, 3, 6, 18, 108 1, 4, 5, 9, 10

2, 7, 9, 16, 25 1, 2, 4, 8, 16 B1 Total 1

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15 $1\frac{1}{2} \div \frac{2}{5} = \frac{3}{2} \div \frac{2}{5}$
$= \frac{3}{2} \times \frac{5}{2}$ M1
$= \frac{15}{4}$ M1
$= 3\frac{3}{4}$ A1 Total 3

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16 **(a)** e.g. 1 worker fits 150 A in 1 hour
1 worker fits 300 A in 300 ÷ 150 = 2 hours M1
1 worker fits 75 B in 1 hour
1 worker fits 300 B in 300 ÷ 75 = 4 hours
1 worker fits 30 C in 1 hour
1 worker fits 300 C in 300 ÷ 30 = 10 hours
So 1 worker would take 2 + 4 + 10 = 16 hours M1
6 workers will take $16 \div 6 = 2\frac{2}{3}$ hours M1
$\frac{2}{3}$ hour = 40 minutes
So it takes 6 workers 2 hours 40 minutes A1

(b) e.g. It is possible for more than 1 worker to be fitting component C at the same time B1

[Lots of possible answers here] Total 5

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17 e.g. 914 km ≈ 900 km, 9.3 litres ≈ 9 litres
She needs about 9 × 9 = 81 litres of fuel M1
£1.09 ≈ £1, Total cost ≈ £81 M1
All the values have been rounded down so the cost will definitely be more than £80 – Laura is correct A1 Total 3

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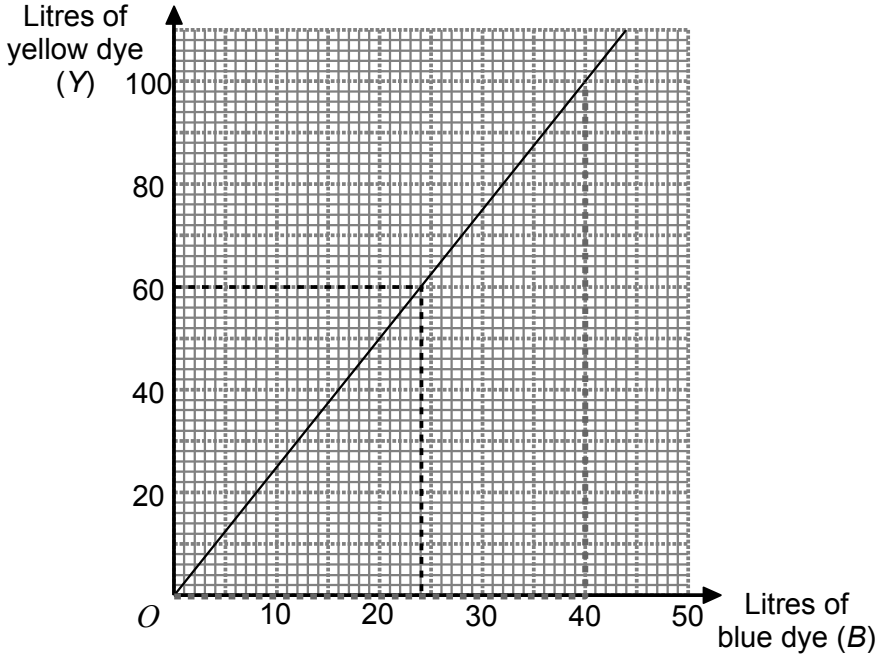
18 **(a)**



60 litres of yellow is mixed with 24 litres of blue
Makes 60 + 24 = 84 litres of green dye B1

(b) e.g. Gradient ≈ $\frac{100 - 0}{40 - 0} = \frac{100}{40} = 2.5$ M1
Hence $Y = 2.5B$ A1

[OR any equivalent form, needn't be explicit
Gradient and therefore formula can be slightly different]

(c) $Y : B = 2.5 : 1$
$= 5 : 2$ B1 Total 4

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19 e.g. Let the original number be x

Adding 4 gives	$x + 4$	M1	
Multiplying by 3 gives	$3(x + 4)$		
Which is the same as	$3x + 12$		
Subtracting 12 gives	$3x$	M1	
Jan divides the number they are left with by 3 to find the original number		A1	Total 3

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20 $3 \times 4 = 12$ so $0.3 \times 0.4 = 0.12$
$0.03 \times 0.04 = 0.0012$
$30 \times 0.0004 = 3 \times 0.004 = 0.012$
$0.03 \times 4 = 0.12$

0.3×0.4	0.03×0.04		
30×0.0004	0.03×4	B1	Total 1

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21 **(a)** e.g. 0.215 lies between 0.21 and 0.22 M1

$0.215 = \frac{215}{1000} = \frac{43}{200}$ A1

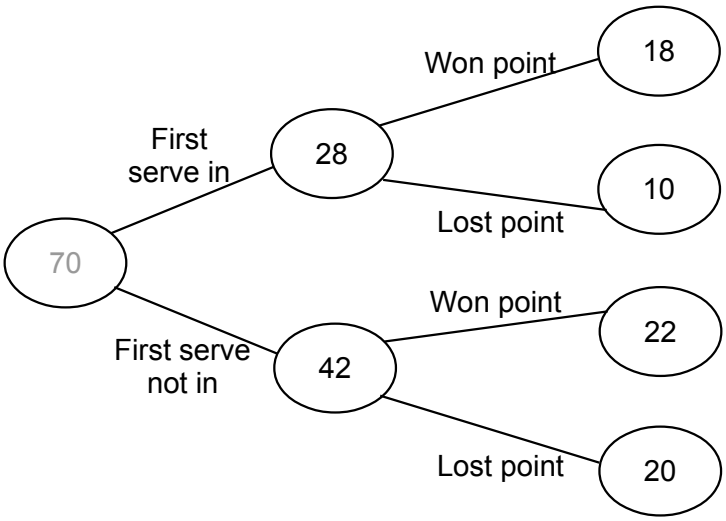
[There are many other correct answers.]

(b) $\frac{1}{4} + \frac{5}{6} + \frac{3}{8} = \frac{6 + 20 + 9}{24} = \frac{35}{24}$ M1

mean $= \frac{35}{24} \div 3$ M1

$= \frac{35}{24} \times \frac{1}{3} = \frac{35}{72}$ A1 Total 5

22



B2 Total 2

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23 **(a)** $3q(4p + 5)$ M1 A1

(b) $(a - 1)(a - 3) = 0$ M1

$a - 1 = 0$ or $a - 3 = 0$ M1

$a = 1$ or 3 A1 Total 5

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24 **(a)** 5 B1

(b) $= 3.8 \times 100\,000$
$= 3.8 \times 10^5$ B1

(c) $= 7 \times \frac{1}{100\,000}$
$= 7 \times 10^{-5}$ B1 Total 3

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25 x will be the height of cloches so $x \geq 12$
Width of cloches will be $60 - 2x$ M1
So $60 - 2x \geq 22$
$60 \geq 22 + 2x$
$38 \geq 2x$ M1
$x \leq 19$
Hence, $12 \leq x \leq 19$ A1 Total 3

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26 **(a)** $\frac{1}{2}$ B1

(b) $\frac{\sqrt{3}}{2}$ B1

(c) $\sin x = \frac{\text{opp}}{\text{hyp}}$
$\sin 30^\circ = \frac{AB}{8.4}$ M1
$8.4 \times \sin 30^\circ = AB$
$AB = 8.4 \times \frac{1}{2} = 4.2$ cm A1 Total 4

TOTAL FOR PAPER: 80 MARKS