For **AQA**

Mathematics

Paper 2 (Calculator)

Foundation Tier

Churchill Paper 2C – 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 2C Marking Guide – AQA Foundation Tier

1 35 50 340 **350** B1 Total 1

2 13 **26** 130 169 B1 Total 1

3 **(a)** 5 × 7 = 35 dots for each pack
800 ÷ 35 = 22.857...
She can make 22 packs

22 23 43 60 B1

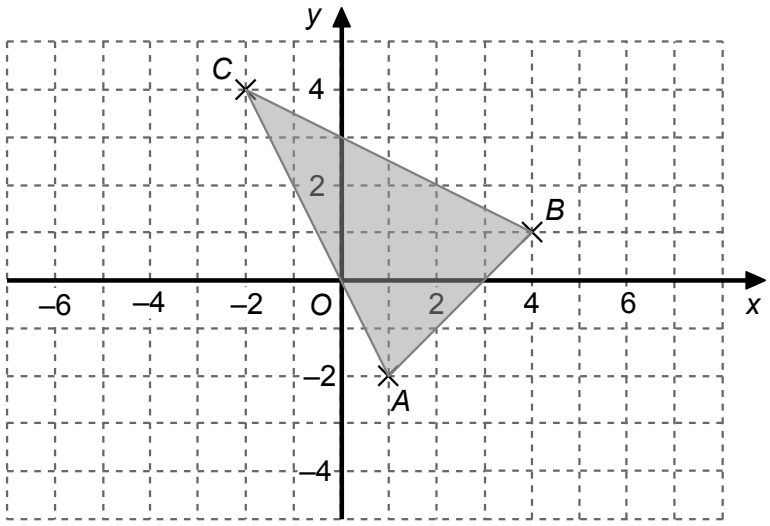
(b) 22 × 35 = 770
800 – 770 = 30 glue dots left over

5 6 **30** 31 B1

(c) e.g. I have assumed that no dots get wasted because of mistakes in making the cards B1 Total 3

4 **(a)** (1, –2) B1

(b)



B1

(c) *[An indication on the graph or in words of C being the same distance from A and B to make an isosceles triangle]* M1

e.g. (–2, 4) *[Any point (bar midpoint of AB) on y = 2 – x]* A1 Total 4

5 Votes for Mr. Jones = 400 – 240 = 160
Ratio = 240 : 160 M1
= 3 : 2 A1 Total 2

6 **(a)** 2.7 B1

(b) $= \frac{60.6}{3.68}$ M1

= 16.467...

= 16.5 (1dp) A1 Total 3

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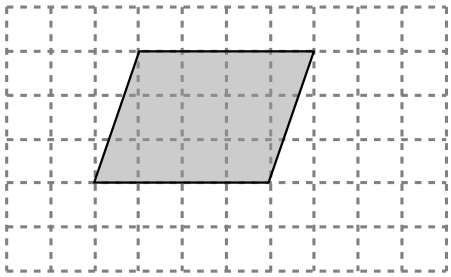
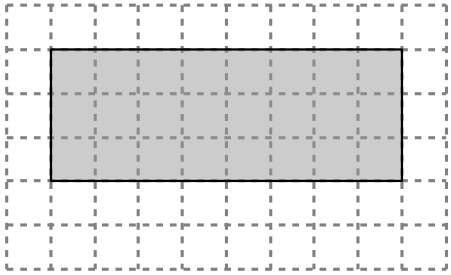
7 **(a)** e.g.



B1

[Many possible answers, most likely 3 by 4 or 2 by 6 rectangle sheared]

(b)



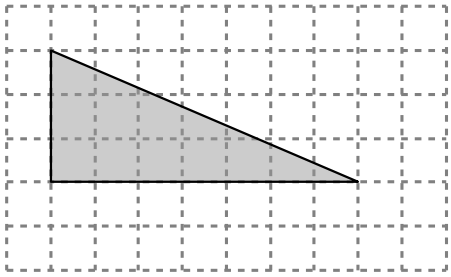
[M1 for A or P met] M1 A1

Length + width = 22 ÷ 2 = 11

Length × width = 24 so must be 3 cm by 8 cm

(c) e.g. 2 × 10.5 = 21

So half of rectangle of area 21 cm^2 M1



A1

[Many possible answers (doesn't have to be half a rectangle)] Total 5

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8 Total caps = 36 + 12 = 48

After move, $\frac{1}{3}$ of caps are in Team B M1

48 ÷ 3 = 16

Number of caps in Team B has increased from 12 to 16 M1

Mel has 4 caps A1 Total 3

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9 **(a)** Smallest diameter = 18.0 mm
Largest diameter = 28.4 mm
Largest possible difference = 28.4 – 18.0 = 10.4 mm B1

(b) In order:

5p	1p	20p	£1	10p	2p	50p	£2
18.0	20.3	21.4	22.5	24.5	25.9	27.3	28.4

M1
To the left of the £1 coin is the 20p coin A1

(c) e.g. If one of the coins was a £1 coin then the combined thickness of the other 2 would be 6.05 – 3.15 = 2.9 mm M1
The thinnest coin is the 1p which is 1.65 mm
Two 1p coins together would be more than 3 mm thick
So none of Owais's coins can be £1 coins A1 Total 5

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10 10% of £320 = £32
5% of £320 = £32 ÷ 2 = £16 M1
10% of £45 = £4.50
40% of £45 = 4 × £4.50 = £18
So, Saffiah earned £16 more basic but £18 less overtime M1
In total, Liz earned more by £2 A1

[Liz total = £365, Saffiah total = £336 + £27 = £363] Total 3

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11 **(a)** 14 – 6 = 8
8 ÷ 2 = 4 The output is 4 B1

(b) 20 × 2 = 40 M1
40 + 6 = 46 The input is 46 A1

(c) e.g. An input of 14 must give an output of 4
14 ÷ 2 = 7
7 – 3 would give 4 so the operation might be – 3
An input of 46 must give an output of 20
46 ÷ 2 = 23
23 – 3 = 20
The operation that is covered up is – 3 B1

[B1 – Accept correct answer without working] Total 4

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12 **(a)** e.g. Horizontal row will have 5 circles
Circles in vertical above: 0, 2, 4, 6 ... so 8 in Pattern 5
Circles in vertical below the same so 8
5 + 8 + 8 = 21 M1 A1

[Lots of methods possible here and for (b) and (c). nth term is 5n – 4]

(b) e.g. Each Pattern has 2 extra at top, 2 extra at bottom and 1 extra on right so 5 extra in total. 49 lots of 5 is 245 so we add 245 to the 1 circle on Pattern 1 giving 246. M1 A1

(c) e.g. The number of circles always increases by 5. Adding 5 to a number ending in 1 will give a number ending in 6. Adding 5 to a number ending in 6 will give a number ending in 1. As the first Pattern has 1 circle, the number of circles will always be a number ending in 1 or 6. M1 A1 Total 6

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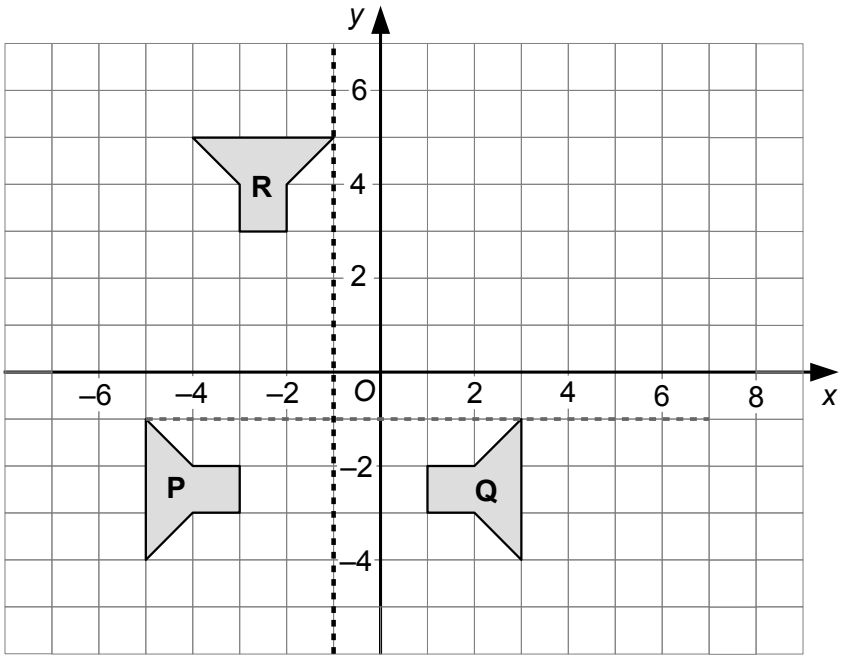
13 = 5*y* + 10 + 2*y* – 6 M1
= 7*y* + 4 A1 Total 2

14

(a) M1 A1

(b) M1 A1



Total 4

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15 3 **× 3** = 9 so 18 **× 3** = 54

6 24 54 324 B1 Total 1

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16 **(a)** e.g. Gethin has run 5.5 km in 30 minutes
He would run 1 km in 30 ÷ 5.5 = 5.45... minutes M1
He would run 20 km in 20 × 5.45... M1
= 109.09... minutes
= 1 hour 49 minutes (nearest minute) A1

(b) e.g. It is likely to have led to a smaller answer than is realistic B1
as he will probably get tired and slow down B1 Total 5

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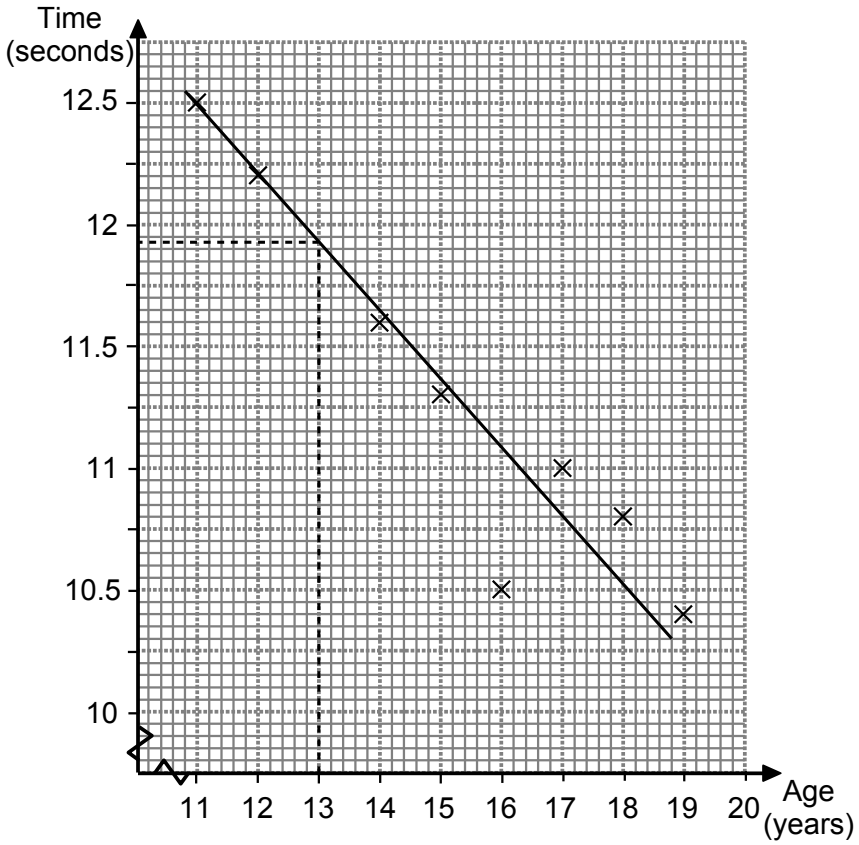
17 **(a)** e.g. Because that point is an outlier – it does not fit with the trend of the rest of the data — B1

(b) e.g. No, because the points plotted are the best for each age – it only takes one exceptional athlete to produce an outlier so it could be correct — B1

(c)



M1

≈ 11.9 seconds (from line of best fit) — A1

[Line can consider or ignore the outlier]

(d) e.g. Because age 30 is outside the range of the data – it requires extrapolation and we don't know if the trend continues — B1 — Total 5

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18 550 × 1.21 = €665.50 — M1

550 × 1.25 = €687.50

687.50 – 665.50 = €22 — M1 A1 — Total 3

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19 **(a)** $3(x - 7) = 6$

$3x - 21 = 6$

$3x = 27$ — M1

$x = 9$ — A1

(b) $R = 3T + \frac{1}{2}M$

$R - 3T = \frac{1}{2}M$ — M1

$M = 2(R - 3T)$ [or $M = 2R - 6T$] — A1 — Total 4

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20 $1\ m^2 = 100^2\ cm^2 = 10000\ cm^2$
$0.4\ m^2 = 0.4 \times 10000 = 4000\ cm^2$

$40\ cm^2$ $4000\ cm^2$ $40\,000\ cm^2$ $400\,000\ cm^2$ B1 Total 1

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21 **(a)** $0 \le N \le 9$ $10 \le N \le 19$ $20 \le N \le 29$ $30 \le N \le 39$ B1

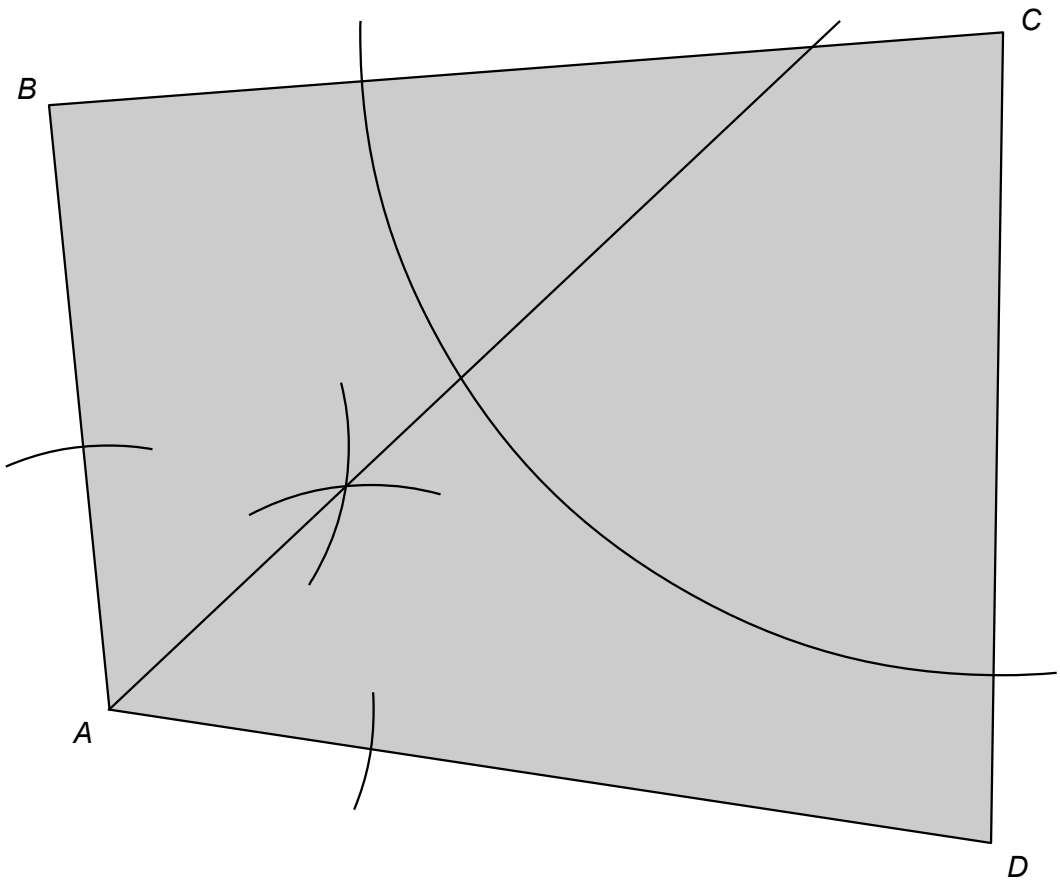
(b)

Number of Apps (N)	Frequency	Midpoint	Frequency × midpoint
$0 \le N \le 9$	4	4.5	18
$10 \le N \le 19$	11	14.5	159.5
$20 \le N \le 29$	6	24.5	147
$30 \le N \le 39$	7	34.5	241.5
$40 \le N \le 49$	2	44.5	89

Total no. of apps = 18 + 159.5 + 147 + 241.5 + 89 = 655 M1

Mean $\approx \frac{655}{30}$ = 21.8 (3sf) M1 A1 Total 4

22



Arc of circle centre *C*, radius 8.5 cm B1
Correct method of construction of bisector of angle *BAC* M1
On the drawing, distance ≈ 9.3 cm M1
The tree is 465 m from *D* *[Accept 440 to 490]* A1 Total 4

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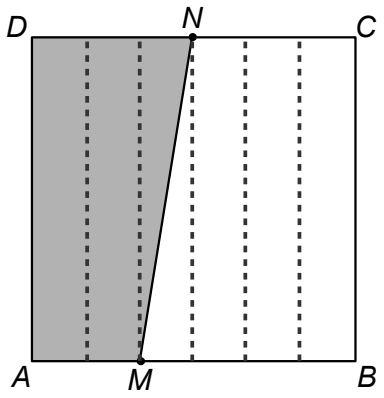
23 e.g. Dividing the square into 6 equal strips we have



M1

M has 2 strips on one side and 4 on the other
N has 3 strips on each side

The shaded area is $2\frac{1}{2}$ strips out of 6 strips M1

Fraction shaded = $\frac{2\frac{1}{2}}{6}$

$= \frac{5}{12}$ A1 Total 3

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24 **(a)** $\frac{1}{4}$ $\frac{5}{11}$ $\frac{5}{16}$ $\frac{11}{16}$ B1

(b) If the first card is algebra there will then be 4 algebra cards left out of the 15 cards left

P(both algebra) = $\frac{5}{16} \times \frac{4}{15}$ M2

$= \frac{20}{240}$ $\left[= \frac{1}{12} \right]$ A1 Total 4

TOTAL FOR PAPER: 80 MARKS