

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



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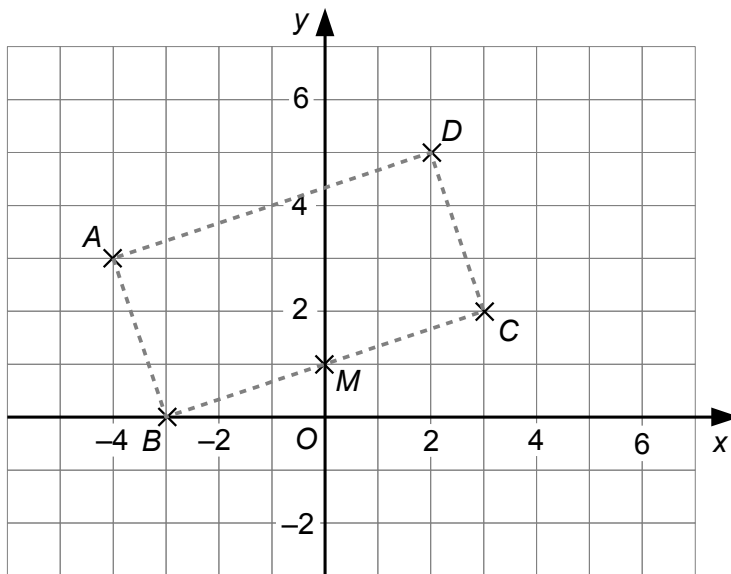
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- 8 (a)  $2.7 + 0.85 = 3.55$  B1
- (b)  $\frac{2}{5} = \frac{4}{10}$   
 So  $\frac{2}{5} - \frac{1}{10} = \frac{3}{10}$  B1
- (c)  $4 \times 3 = 12$   
 So  $4 \times 0.03 = 0.12$  B1 Total 3

- 9 (a)  $(-4, 3)$  B1

(b)



B1

- (c) [e.g. rectangle completed on grid] M1  
 $(2, 5)$  A1 Total 4

- 10 (a) 2 B1
- (b)  $= 25 + 64 + 81$  M1  
 $= 89 + 81$   
 $= 170$  A1 Total 3

- 11 ~~2~~ ~~4~~ ~~4~~ ~~4~~ (6) ~~7~~ ~~8~~ ~~9~~ B1 Total 1  
 4 5 (6) 6.5

12  $AB = BD$  so triangle  $ABD$  is isosceles  
Hence, angle  $BDA = \text{angle } BAD = 34^\circ$  M1  
Angles in a triangle add up to  $180^\circ$   
So angle  $ABD = 180 - 34 - 34 = 112^\circ$  M1  
Angles on a straight line add up to  $180^\circ$   
So angle  $CBD = 180 - 112 = 68^\circ$   
 $BD = CD$  so triangle  $BCD$  is isosceles  
Hence, angle  $BCD = \text{angle } CBD = 68^\circ$   
Angles in a triangle add up to  $180^\circ$   
So angle  $a = 180 - 68 - 68 = 44^\circ$  M1 A1 Total 4

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13  $3\frac{1}{2} \times \text{£}10 = \text{£}35$   
 $3\frac{1}{2} \times 60\text{p} = \text{£}1.80 + \text{£}0.30 = \text{£}2.10$   
 $3\frac{1}{2} \times \text{£}10.60 = \text{£}35 + \text{£}2.10 = \text{£}37.10$   

£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)  $5y = 2y + 18$   
 $3y = 18$  M1  
 $y = 6$  A1 Total 3

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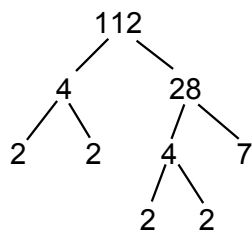
15 (a) e.g. She can not be sure of this because 10 is a very small number of trials B1  
(b) No. of times red bead picked  $= 7 + 6 + 8 + 6 = 27$  M1  
No. of trials  $= 40$   
 $P(\text{Faria picks a red bead}) = \frac{27}{40}$  A1 Total 3

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

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17 (a) e.g.

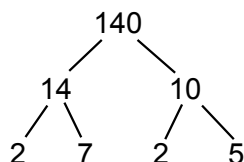


M1

$$112 = 2^4 \times 7$$

A1

(b) e.g.



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

$$\begin{aligned} \text{HCF} &= 2^2 \times 7 \\ &= 28 \end{aligned}$$

M1

A1

Total 4

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

- 19 (a) 1 chain costs  $180 \div 20 = \text{£}9$   
 1 bead costs  $750 \div 500 = \text{£}1.50$   
 1 spacer costs  $90 \div 100 = \text{£}0.90$   
 1 heart charm costs  $120 \div 30 = \text{£}4$

M1

$$\begin{aligned} \text{Total} &= 9 + (8 \times 1.50) + (4 \times 0.90) + 4 \\ &= 9 + 12 + 3.60 + 4 \\ &= \text{£}28.60 \end{aligned}$$

M1

A1

- (b) Profit on 1 bracelet =  $39.90 - 28.60 = \text{£}11.30$   
 Profit on 15 bracelets =  $15 \times 11.30$   
 $= 10 \times 11.30 + 5 \times 11.30$   
 $= 113 + 56.50$   
 $= \text{£}169.50$

M1

A1

Total 5

20 2 6 18 54  
 $\times 3 \quad \times 3 \quad \times 3$  Next term =  $3 \times 54 = 162$

72 162 166 2916

B1

Total 1

<b>21</b>	500 – 100 = 400 400 ÷ 2 = 200 So there are 200 girls and 300 boys in the club 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 100 – 48 = 52, so there are 52 more girls % increase in no. of girls = $\frac{52}{200} \times 100\%$ = $\frac{52}{2} \% = 26\%$	B1          M1   M1  A1	Total 4
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<b>22</b>	(a) $-2 < x \leq 7$	B1	
	(b) $2N < 30 \rightarrow N < 15$ $3N > 40 \rightarrow N > 13\frac{1}{3}$ $N$ is between $13\frac{1}{3}$ and 15 As $N$ is a whole number, $N = 14$	M1     A1	Total 3

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<b>23</b>	Last week = 100% This week = 120% = 240 So, $10\% = 240 \div 12 = 20$ $100\% = 10 \times 20 = 200$ Leanne sent 200 emails last week	M1 A1	Total 2
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<b>24</b>	(a) Jeremy marks 1 homework in $60 \div 12 = 5$ minutes Kira marks 1 homework in $120 \div 30 = 4$ minutes Liz marks 1 homework in 6 minutes Therefore Kira is the quickest	M1   A1	
	(b) In 20 minutes Jeremy marks 4 homeworks and Kira marks 5 homeworks Together they mark 9 homeworks in 20 minutes $36 \div 9 = 4$ so they take $4 \times 20 = 80$ minutes $4.30 \text{ pm} + 80 \text{ minutes} = 5.30 \text{ pm} + 20 \text{ minutes} = 5.50 \text{ pm}$ They finish marking at 5.50 pm	M1 M1 A1	Total 5

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<b>25</b>	Area of rectangle = $10 \times 18 = 180 \text{ cm}^2$ Four quarter-circles have the same area as one whole circle Radius = $10 \div 2 = 5 \text{ cm}$ Area of circle = $\pi \times 5^2 = 25\pi \text{ cm}^2$ Shaded area = $180 - 25\pi \text{ cm}^2$	B1    M1 A1	Total 3
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26  $2 + 3 = 5$   
 $600 \div 5 = 120$   
 $2 \times 120 = 240$

120	200	240	250	B1	Total 1
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27 The angles in a triangle add up to  $180^\circ$  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  $\pounds b$  and a roll cost  $\pounds r$

So,	$3b + 2r = 3$	(1)		
	$b + 4r = 2$	(2)		
$2 \times (1)$	$6b + 4r = 6$	(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 $\pounds 0.80$ which is 80p and a roll costs 30p				
Lee pays $2 \times 80p + 5 \times 30p$				
	$= \pounds 1.60 + \pounds 1.50 = \pounds 3.10$		A1	Total 4

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**TOTAL FOR PAPER: 80 MARKS**