



GCSE MARKING SCHEME

AUTUMN 2020

**GCSE
MATHEMATICS – UNIT 1 (FOUNDATION TIER)
3300U10-1**

INTRODUCTION




This marking scheme was used by WJEC for the 2020 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

WJEC GCSE MATHEMATICS
AUTUMN 2020 MARK SCHEME

GCSE Mathematics Unit 1: Foundation Tier	Mark	Comments
1. (a) Angle of 35° drawn at A	B1	Accept 33° to 37° Point alone is not sufficient.
1.(b) Circle radius 7cm (diameter 14 cm)	B1	Accept radius 6.8 (cm) to 7.2 (cm)
2.(a) 5433	B1	
2.(b) 174	B1	
2.(c) 75	B1	
2.(d) $6 \times 7 \div 2$ = 21	M1 A1	If no marks, award SC1 for sight of 42.
3.(a) 600	B1	
3.(b) 4000	B1	
4.(a) D	B1	
4.(b) S	B1	
5.(a) 9	B1	
5.(b) \div $-$	B1	
6.(a) 53	B1	
6.(b) 125	B1	
7.(a) 70 (%)	B1	
7.(b) 6 sectors shaded	B1	
8. $\frac{1}{3} \times 180(^{\circ})$ OR $\frac{2}{3} \times 180(^{\circ})$ or equivalent 60° OR 120° (180 – 60 =) 120 (°) OR (180 – 120 =) 60 (°)	M1 A1 B1	A1 for either 60° OR 120° FT 'their 60' or 'their 120'. Two angles which add to 180° will get this B1. If no marks award SC1 for one angle twice the size of the other.
<u>Alternative Method</u> $2x + x = 180 (^{\circ})$ or $3x = 180 (^{\circ})$ $x = 60 (^{\circ})$ $2x = 120 (^{\circ})$	M1 A1 B1	FT 2 × 'their x' or 180 – 'their x'
9.(a) 16g	B1	
9.(b) (y =) 9	B1	Accept embedded answers. Mark final answer.
9.(c) (w =) 30	B1	Accept embedded answers. Mark final answer.

<p>9.(d) $4x = 10 - 7 (=3)$ $x = \frac{3}{4}$ or equivalent.</p>	<p>B1 B1</p>	<p>FT from $4x = b$. Integer answer required if b is a multiple of 4 Mark final answer. Allow an embedded answer eg $4 \times 0.75 + 7 = 10$ for B2, but penalise -1 if contradicted by $x \neq 0.75$</p>
<p>10. (Factors of) 16, OR 32, OR 64, ... (Multiples of) 4</p>	<p>B1 B1</p>	<p>Accept any multiple of 16 which does not have a factor of 3.</p>
<p>11. 9, 13 and 14 OR 10, 13 and 15 OR 11, 13 and 16 OR 12, 13 and 17</p>	<p>B2</p>	<p>Allow in any order. B1 for 3 whole numbers with a median of 13 OR B1 for 3 whole numbers with a range of 5 Penalise -1 for any repeated numbers. e.g. 8, 13, 13 gains B2 -1 = B1 13, 13, 13 gains B1 -1 = B0.</p>
<p>12.  (Perimeter =) $8 \times 7 + 2 \times 3$ (cm) or equivalent (Perimeter =) 62 (cm)</p>	<p>B1 M1 A1</p>	<p>May be implied by correct method which would lead to an answer of 62 (cm). (This is the only diagram which can gain B1.) If no diagram, then B1 M1 A1 for correct calculation which leads to answer of 62 (cm). FT these large rectangles only:</p> <p> B0</p> <p>(Perimeter =) $8 \times 3 + 2 \times 7$ (cm) or equivalent M1 (Perimeter =) 38 (cm) A1 OR</p> <p> B0</p> <p>(Perimeter =) $4 \times 7 + 4 \times 3$ (cm) or equivalent M1 (Perimeter =) 40 (cm) A1</p> <p>If no diagram, allow SC1 for $(8 \times 3 + 2 \times 7 \text{ or equivalent}) = 38$ (cm) OR $(4 \times 7 + 4 \times 3 \text{ or equivalent}) = 40$ (cm).</p>
<p>Organisation and Communication</p> <p>Accuracy of writing</p>	<p>OC1 W1</p>	<p>For OC1, candidates will be expected to:</p> <ul style="list-style-type: none"> • present their response in a structured way • explain to the reader what they are doing at each step of their response • lay out their explanation and working in a way that is clear and logical • write a conclusion that draws together their results and explains what their answer means. <p>For W1, candidates will be expected to:</p> <ul style="list-style-type: none"> • show all their working • make few, if any, errors in spelling, punctuation and grammar • use correct mathematical form in their working • use appropriate terminology, units, etc.
<p>13.(a) 20(:)18 OR 8(:)18 p.m..</p>	<p>B1</p>	<p>B0 for (0)8:18 or 8:18 a.m. or 20:18 a.m. Allow 20(:)18 p.m. and 08:18 p.m.</p>

13.(b)	6 (hours) 40 (minutes)	B1									
13.(c)	265 (seconds)	B2	B1 for sight of 435 AND 170 OR B1 for sight of 300 AND 35 OR B1 for 4 minutes 25 seconds.								
14.(a)	Line $x = -4$ drawn	B1	Line must be at least 2 units long. B0 if 'extra' lines drawn unless correct line unambiguously identified.								
14.(b)(i)	Point C shown at $(-2, -4)$	B2	Allow B2 if point C not labelled but is unambiguously at the correct position (eg 'end of line'). Otherwise, B1 if Point C at $(-2, y)$ $y \neq 3$. ($\hat{B}AC = 90^\circ$) SC1 for point C at $(5, -4)$.								
14.(b)(ii)	$(-2, -4)$	B1	FT 'their unambiguously identified position of point C'. Allow missing brackets.								
15.(a)	2700	B2	B1 for sight of 27 OR sight of 100. Mark final answer.								
15.(b)	0.08	B1	Mark final answer								
15.(c)	<u>Correctly</u> using a common denominator. $\frac{13}{18}$ or equivalent. 18	M1 A1	Mark final answer.								
16.	<table border="1" data-bbox="124 1010 703 1088"> <thead> <tr> <th>Answer</th> <th>Yes</th> <th>No</th> <th>Not sure</th> </tr> </thead> <tbody> <tr> <td>Number of students</td> <td>150</td> <td>50</td> <td>100</td> </tr> </tbody> </table>	Answer	Yes	No	Not sure	Number of students	150	50	100	B3	B1 for (Yes =) 150 C.A.O. B2 for (No =) 50 AND (Not sure =) 100. or FT 'their Yes' for $(\text{No} =) \frac{1}{3}(300 - \text{'Yes'})$ AND (Not sure =) $\frac{2}{3}(300 - \text{'Yes'})$ If B2 not gained, then B1 for (No =) 50 OR (Not sure =) 100 or FT 'their Yes' for $(\text{No} =) \frac{1}{3}(300 - \text{'Yes'})$ OR (Not sure =) $\frac{2}{3}(300 - \text{'Yes'})$ or B1 for 'No' + 'Not sure' = 150 or B1 if 'Not sure' = $2 \times \text{'No'}$. or B1 for Yes + No + Not sure = 300.
Answer	Yes	No	Not sure								
Number of students	150	50	100								
17.	a = 113 b = 67 c = 113	B1 B1 B1	C.A.O. OR FT 180 – 'their a'. OR FT = 'their a' OR FT 180 – 'their b'.								
18.(Probability of Puffin Island =) $1 - 0.4 - 0.15 - 0.25 = 0.2$		M1 A1	An unsupported answer of 0.56 implies M1								
(Number of cards showing Puffin Island =) $0.2 \times 80 = 16$		M1 A1	FT 'their <u>stated</u> P(Puffin Island)' $\times 80$, only if 'their <u>stated</u> P(Puffin Island)' < 1 . 16/80 is M1A0 unless 16 has been seen.								
<u>Alternative method</u> (Number of cards showing other 3 islands =) $0.4 \times 80 + 0.15 \times 80 + 0.25 \times 80$ or equivalent = 64		M1 A1	Allow M1 for sight of 32 AND 12 AND 20.								
(Number of cards showing Puffin Island =) $80 - 64 = 16$		M1 A1	FT 80 – 'their <u>derived</u> 64', only if 'their <u>derived</u> 64' < 80 . 16/80 is M1A0 unless 16 has been seen.								

<p>19.(a) Correct <u>construction</u> method. e.g. (i) intersecting arcs of radii 6cm and 9cm with centres A and C respectively. OR (ii) copying the angle at B at the point A (will require AB or BA to be extended). Completed parallelogram.</p>	<p>M1 A1</p>	<p>Relevant construction arcs must be seen.</p>
<p>19.(b) 'measured length' $\times 200$ = 1520 (cm) = 15.2 metres</p>	<p>M1 A1 B1</p>	<p>Allow for error in measuring line XY. Accept only in range 1480 to 1560 inclusive. FT 'their 1520' $\div 100$. Unsupported 14.8 to 15.6 inclusive gains all 3 marks.</p>
<p><u>Alternative method</u> Sight of scale is 1cm represents 2m 'measured length' $\times 2$ = 15.2 metres</p>	<p><i>B1</i> <i>M1</i> <i>A1</i></p>	<p><i>Allow for error in measuring line XY.</i> <i>Accept only in range 14.8 to 15.6 inclusive.</i></p>
<p>20.(a) 9.231</p>	<p>B1</p>	
<p>20.(b) 170</p>	<p>B1</p>	
<p>20.(c) 10</p>	<p>B1</p>	