## GCSE MARKING SCHEME

AUTUMN 2020

GCSE<br>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 <br> Unit 1: Foundation Tier | Mark | Comments |
| :---: | :---: | :---: |
| 1. (a) Angle of $35^{\circ}$ drawn at A | B1 | Accept $33^{\circ}$ to $37^{\circ}$ <br> Point alone is not sufficient. |
| 1.(b) Circle radius 7 cm (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 |  |
| $\text { 2.(d) } 6 \times 7 \div 2=21$ | $\begin{aligned} & \text { M1 } \\ & \text { A1 } \end{aligned}$ | If no marks, award SC1 for sight of 42. |
| 3.(a) 600 | B1 |  |
| 3.(b) 4000 | B1 |  |
| 4.(a) D | B1 |  |
| 4.(b) | 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 |  |
| $\begin{aligned} & \text { 8. } 1 / 3 \times 180\left({ }^{\circ}\right) \text { OR } 2 / 3 \times 180\left({ }^{\circ}\right) \quad \text { or equivalent } \\ & 60\left({ }^{\circ}\right) \text { OR } 120\left({ }^{\circ}\right) \\ & (180-60=) 120\left({ }^{\circ}\right) \text { OR }(180-120=) 60\left({ }^{\circ}\right) \end{aligned}$ | M1 <br> A1 B1 | A1 for either 60( ${ }^{\circ}$ ) OR $120\left({ }^{\circ}\right)$ <br> FT 'their 60' or 'their 120'. <br> Two angles which add to $180\left({ }^{\circ}\right)$ will get this B1. <br> If no marks award SC1 for one angle twice the size of the other. |
| $\begin{aligned} & \begin{array}{l} \text { Alternative Method } \\ 2 x+x=180\left({ }^{\circ}\right) \\ x=60\left({ }^{\circ}\right) \\ 2 x=120\left({ }^{\circ}\right) \end{array} \\ & \end{aligned}$ | $\begin{aligned} & \text { M1 } \\ & \text { A1 } \\ & \text { B1 } \end{aligned}$ | FT $2 \times$ 'their $x$ ' or 180-'their $x$ ' |
| 9.(a) 16 g | B1 |  |
| 9.(b) ( $\mathrm{y}=) 9$ | B1 | Accept embedded answers. Mark final answer. |
| 9.(c) (w = ) 30 | B1 | Accept embedded answers. Mark final answer. |


| $\text { 9.(d) } \quad \begin{aligned} 4 \mathrm{x} & =10-7(=3) \\ \mathrm{x} & =\frac{3}{4} \text { or equivalent. } \end{aligned}$ | $\begin{aligned} & \text { B1 } \\ & \text { B1 } \end{aligned}$ | FT from $4 \mathrm{x}=\mathrm{b}$. <br> Integer answer required if $b$ is a multiple of 4 <br> Mark final answer. <br> Allow an embedded answer eg $4 \times 0.75+7=10$ for <br> B2, but penalise -1 if contradicted by $x \neq 0.75$ |
| :---: | :---: | :---: |
| 10. (Factors of) 16, OR 32, OR 64, $\ldots$ <br> (Multiples of) 4 | B1 <br> B1 | Accept any multiple of 16 which does not have a factor of 3 . |
| 11. 9,13 and 14 OR <br> 10,13 and 15 OR <br> 11,13 and 16 OR <br> 12,13 and 17  | B2 | Allow in any order. <br> 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 $=B 0$. |
| 12. $\begin{aligned} & (\text { Perimeter }=) 8 \times 7+2 \times 3(\mathrm{~cm}) \quad \text { or equivalent } \\ & (\text { Perimeter }=) 62(\mathrm{~cm}) \end{aligned}$ | B1 <br> M1 <br> A1 | May be implied by correct method which would lead to an answer of 62 (cm). (This is the only diagram which can gain B1.) <br> If no diagram, then B1 M1 A1 for correct calculation which leads to answer of 62 (cm). <br> FT these large rectangles only: |
| Organisation and Communication | OC1 | For OC1, candidates will be expected to: <br> - present their response in a structured way <br> - explain to the reader what they are doing at each step of their response <br> - lay out their explanation and working in a way that is clear and logical <br> - write a conclusion that draws together their results and explains what their answer means. |
| Accuracy of writing | W1 | For W1, candidates will be expected to: <br> - show all their working <br> - make few, if any, errors in spelling, punctuation and grammar <br> - use correct mathematical form in their working <br> - use appropriate terminology, units, etc. |
| 13.(a) 20(:)18 OR 8(:)18 p.m.. | B1 | 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. |


| 13.(b) 6 (hours) 40 (minutes) |  |  |  | B1 |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 13.(c) 265 (seconds) |  |  |  | B2 | B1 for sight of 435 AND 170 OR <br> B1 for sight of 300 AND 35 OR <br> B1 for 4 minutes 25 seconds.  |
| 14.(a) Line $\mathrm{x}=-4$ 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'). <br> Otherwise, B1 if Point C at $(-2, y) \mathrm{y} \neq 3$. ( $\mathrm{BA} \mathrm{C}=90^{\circ}$ ) 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) | 15.(b) 0.08 |  |  | B1 | Mark final answer |
| 15.(c) Correctly using a common denominator. |  |  |  | $\begin{aligned} & \text { M1 } \\ & \text { A1 } \end{aligned}$ | Mark final answer. |
| 16. | $\begin{aligned} & \hline \text { Yes } \\ & \hline 150 \end{aligned}$ | $\begin{gathered} \mathrm{No} \\ \hline 50 \end{gathered}$ | Not sure 100 | B3 | B1 for (Yes =) 150 C.A.O. <br> B2 for $(\mathrm{No}=) 50$ AND (Not sure $=$ ) 100. or <br> FT 'their Yes' for ( $\mathrm{No}=)^{1 / 3}(300-$ 'Yes') AND <br> If B2 not gained, then <br> ( Not sure $=)^{2 / 3}(300-' Y e s ')$ <br> B1 for $(\mathrm{No}=) 50$ OR (Not sure $=100$ or <br> FT 'their Yes' for ( $\mathrm{No}=)^{1 / 3}(300-' \mathrm{Yes}$ ') OR <br> (Not sure $=)^{2 / 3}(300-' Y e s ')$ <br> B1 for 'No' + 'Not sure' $=150$ <br> B1 if 'Not sure' $=2 \times$ 'No'. <br> B1 for Yes $+\mathrm{No}+$ Not sure $=300$. |
| 17.$\begin{aligned} & \mathrm{a}=113 \\ & \mathrm{~b}=67 \\ & \mathrm{c}=113 \end{aligned}$ |  |  |  | $\begin{aligned} & \text { B1 } \\ & \text { B1 } \\ & \text { B1 } \end{aligned}$ | C.A.O. OR FT 180 - 'their a'. OR FT = 'their a' OR FT 180 - 'their b'. |
| $\text { 18.(Probability of Puffin Island=) } \begin{aligned} & 1-0.4-0.15-0.25 \\ &=0.2 \end{aligned}$ <br> (Number of cards showing Puffin Island $=$ ) $0.2 \times 80$ |  |  |  | M1 <br> A1 <br> M1 <br> A1 | An unsupported answer of 0.56 implies M1 <br> FT 'their stated $P(P u f f i n$ Island)' $\times 80$, only if 'their stated $\mathrm{P}($ Puffin Island)' $<1$. <br> $16 / 80$ is M1A0 unless 16 has been seen. |
| Alternative method <br> (Number of cards showing other 3 islands $=$ ) $\begin{aligned} 0.4 \times 80+0.15 \times 80 & +0.25 \times 80 \text { or equivalent } \\ & =64\end{aligned}$ $=64$ <br> (Number of cards showing Puffin Island =) $80-64$ $=16$ |  |  |  | $\begin{aligned} & \text { M1 } \\ & \text { A1 } \end{aligned}$ <br> M1 <br> A1 | Allow M1 for sight of 32 AND 12 AND 20. <br> FT 80 - 'their derived 64 ', only if 'their derived 64 ' $<80$. <br> $16 / 80$ is M1AO unless 16 has been seen. |


| 19.(a) Correct construction method. <br> e.g. (i) intersecting arcs of radii 6 cm and 9 cm with centres A and C respectively. <br> OR (ii) copying the angle at B at the point A (will require $A B$ or $B A$ to be extended). <br> Completed parallelogram. | M1 <br> A1 | Relevant construction arcs must be seen. |
| :---: | :---: | :---: |
| $\text { 19.(b) } \quad \begin{aligned} \text { 'measured length' } & \times 200 \\ = & 1520(\mathrm{~cm}) \\ = & 15 \cdot 2 \text { metres } \end{aligned}$ | $\begin{aligned} & \hline \text { M1 } \\ & \text { A1 } \\ & \text { B1 } \end{aligned}$ | Allow for error in measuring line XY. <br> Accept only in range 1480 to 1560 inclusive. <br> FT 'their 1520 ' $\div 100$. <br> Unsupported 14.8 to $15 \cdot 6$ inclusive gains all 3 marks. |
| $\begin{aligned} & \begin{array}{l} \text { Sight of scale is } 1 \mathrm{~cm} \text { represents } 2 \mathrm{~m} \\ \text { 'measured length' } \times 2 \end{array} \\ & \quad=15.2 \text { metres } \end{aligned}$ | $\begin{aligned} & B 1 \\ & M 1 \\ & \text { A1 } \end{aligned}$ | Allow for error in measuring line $X Y$. <br> Accept only in range 14.8 to 15.6 inclusive. |
| 20.(a) $\quad 9.231$ | B1 |  |
| 20.(b) 170 | B1 |  |
| 20.(c) 10 | B1 |  |

