# GCSE MARKING SCHEME

**AUTUMN 2019**

**GCSE**
**MATHEMATICS – NUMERACY**
**UNIT 1 - FOUNDATION TIER**
**3310U10-1**

## INTRODUCTION

This marking scheme was used by WJEC for the 2019 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 - NUMERACY**

**AUTUMN 2019 MARK SCHEME**

| **GCSE Mathematics – Numeracy**<br>**Unit 1: Foundation Tier** | **Mark** | **Comments** |
|---|---|---|
| 1. | | |
| (Number of children=) 9, 2 and 10 in correct order | B2 | For number of children:<br>Accept tallies or frequencies.<br>Award B1 for 1 or 2 correct. |
| (Number of adults=) 3, 1 and 2 in correct order AND a total of 6 adults needed | B2 | **STRICT** FT 'their number of children' AND 'their correct total of adults'<br>Award B1 for at least 1 correct for number of adults.<br><br>Note: No FT from 3, 4 and 8 as the number of children.<br><br>**Last B2 does not imply 1st B2**<br><br>Note for markers for FT:<br>1 adult for up to 3 children under 2 years old<br>1 adult for up to 4 children aged 2 years<br>1 adult for up to 8 children aged 3 to 7 years |
| 2. (a)(i) 7:30 (p.m.) + 42 + 20 + 48 stated or implied<br>Or 7:30 (p.m.) + 1 hour 50 mins<br>Or 7:30 (pm) + 110 mins | M2 | Award M1 for<br>42 + 20 + 48<br>OR sight of 110 (mins)<br>OR sight of 1 hour 50 mins<br>OR 7:30 (p.m.) + two of the 3 times |
| 9:20 (p.m.) or 21:20 | A2 | Allow 21:20 pm but award A1 for 21:20 am<br>Award A1 only for 9:20 a.m.<br>Award A1 for sight of 110 (mins) or 1 hour 50 mins<br><br>**Note:**<br>An answer of 8:40 implies 7:30 (pm) + 110 mins<br>Award M2 A1 OR 7(pm) + 140 mins<br><br>An answer of 8:80 implies 7:30 (p.m.) + 1 hour 50 mins Award M2 A1<br><br>Award M1 A1 for 42 + 20 + 48 = 110 or 1hour 50mins<br><br>If no marks, award SC1 for sight of 8:12 |
| *Alternative method*<br>*(7:30 (p.m) + 42 minutes =) 8:12 (p.m) or 20:12* | *B1* | *These can be in any order*<br>*Ignore use of a.m. at this stage* |
| *(8:12 (p.m) + 20 minutes =) 8:32 (p.m) or 20:32* | *B1* | *FT 'their 8:12 (p.m)' + 20 minutes*<br>*Ignore use of a.m at this stage* |
| *(8:32 (p.m) + 48 minutes =) 9:20 (p.m) or 21:20* | *B2* | *FT 'their 8:32 (p.m)' + 48 minutes*<br>*Award B1 for 9:20 a.m* |

| | | |
|---|---|---|
| 2. (a)(ii) Seats numbered 15 AND 16 in row G of the stalls indicated | B1 | Award B0 for G15&G16 of the circle |
| 2. (b) (i) Cardiff | B1 | Accept Cardiff and 67% but not just 67% |
| 2. (b) (ii) 2 | B1 | Allow B1 for unambiguous indication of both Merthyr and Blaenau |
| 2. (b) (iii) 21% | B1 | |
| 3. (parents give) 15/100 × 400 or equivalent<br>(£)60 | M1<br>A1 | May be seen in stages<br>This may be implied in further working<br>(eg 400 – 40 – 20 – 160) |
| (grandparents give) 2 × 400 ÷ 5 or equivalent<br>(£)160 | M1<br>A1 | May be seen in stages<br>If M0 A0 award for this calculation, award SC1 for correctly evaluating 2/5 × (400 – 'their 60)<br>eg 2/5 × 340 = 136 |
| (Need to save) 400 – 60 - 160 or 400 – (60 + 160)<br>= (£)180 | M1<br>A1 | FT 'their derived 60' AND 'their derived 160'.<br>This may be implied by adding on £30s to their derived £220 (60 + 160) up to £400. |
| (Number of months) (£)180 ÷ 30<br>6 (months) | M1<br>A1 | FT 'their derived 180'<br>On FT, if number of months is not a whole number answer must be rounded up<br><br>For method of adding on £30s to 'their £220' up to £400, for the last 4 marks award M1 A1 (with not more than one error) and then M1 A1 (for 6 months with no errors in working). FT applies. **However, for the final M1 A1 'their £220' must be below £370 for level of difficulty.** |
| 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 explanations 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 |
| 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. |

<table>
<tr><td>4. (a) 12 (cm) or equivalent<br><br><br>5.5 (cm) or equivalent<br><br>11 m or 11 metres or 1100 cm or equivalent with correct units</td><td>B1<br><br>B1<br><br>B1</td><td>± 2 mm. Seen or implied. Award this B1 for sight of the correct scale eg 1cm represents 2m or sight of 5.5 × 2<br><br>± 2 mm. May be seen on diagram<br><br>Correct units must be given. FT ‘their 5.5 (cm)’ × 2 (Accept answers in the range 10.6m – 11.4m)<br><br>An answer of 11m (or in the range 10.6m –11.4m) award B3<br><br>An answer of 11 (or in the range 10.6-11.4 with no units or wrong units) award B2<br><br>Note: If answer only of 12 m award B1<br>Note: 6(cm) × 2 = 12 m Award B1 B0 B1</td></tr>
<tr><td>4. (b) (i) A suitable reason eg<br>‘Depends on whether they are playing home or away.’<br>‘The Marine Tennis Club may have played better teams.’<br>‘They played different clubs.’<br>‘There were different players.’<br>‘Table doesn’t show the teams they played.’<br>‘It doesn’t matter about their record as you don’t know what types of players they are.’<br>‘In the Bay Tennis Club, the best player could be injured.’</td><td>E1</td><td>Allow statement of different players or clubs.<br><br>Allow:<br>‘Because it doesn’t tell us the performance of each team’<br>‘It’s not possible because until they play each other no-one will know who is better.’<br>‘Because the other teams are not in the table.’<br>‘Because they could have improved.’<br>‘There’s not enough information.’<br>‘Not enough data.’<br>‘You don’t know how well they are going to do next time.’<br><br>Do not accept:<br>‘Because the Bay has won ½ of the matches so they only lost ½.’<br>‘Because both teams would end up with similar average.’<br>‘As they have won & lost while playing against them.’</td></tr>
<tr><td>4. (b) (ii) Tracey, Lisa, Jan, Nafeesa, Molly and Alicia ticked/indicated.<br><br><table><tr><th>Player</th><th>Days they can play</th><th>Players available for November 24th.</th></tr><tr><td>Caroline</td><td>Tuesday and Friday</td><td></td></tr><tr><td>Tracey</td><td>Every day</td><td>✓</td></tr><tr><td>Lisa</td><td>Weekends</td><td>✓</td></tr><tr><td>Sian</td><td>Monday, Tuesday and Friday</td><td></td></tr><tr><td>Jan</td><td>Every day</td><td>✓</td></tr><tr><td>Heather</td><td>Monday to Friday</td><td></td></tr><tr><td>Alys</td><td>Wednesday and Friday</td><td></td></tr><tr><td>Nafeesa</td><td>Tuesday, Friday and Sunday</td><td>✓</td></tr><tr><td>Molly</td><td>Wednesday and Sunday</td><td>✓</td></tr><tr><td>Alicia</td><td>Tuesday and Weekends</td><td>✓</td></tr></table></td><td>B2</td><td>Award B1 for 5 correct and at most 1 incorrect.<br><br>Right hand column takes precedence.</td></tr>
<tr><td>4. (c) Sphere</td><td>B1</td><td></td></tr>
</table>

| | | |
|---|---|---|
| **Ribbon marking for 5(a) and 5(b)**<br>5. (a) 32 (cm) | B1 | |
| **Ribbon marking for 5(a) and 5(b)**<br><br>5. (b) 6 (tyres) | <br><br>B3 | FT 'their 32' from part (a)<br><br>This may be embedded in correct working.<br>eg 6 × 32=192 (cm)<br><br>Award B2 for<br>200 ÷ 32 (cm)<br>2000 ÷ 320 (mm)<br>2 ÷ 0.32 (m)<br>These workings may be seen as multiples eg 32 added up 6 times to 192.<br><br>Award B1 for<br>2 (m) ÷ 32 (cm) or 2000 (mm) ÷ 32 (cm)<br>Or Sight of 200 cm<br>Or Sight of 2000mm<br>Or sight of 0.32m<br>Or sight of working towards 200 or 2000 (eg working towards 192 or 1920) even with incorrect or mixed units |
| 6(a) 8 × 20 ÷ 5 or 1.6 × 20 or equivalent<br>32 (km) | M1<br>A1 | Allow calculation 1.5 × 20 or 1.61 × 20<br>Allow FT answer (1.5 × 20 =) 30 (km)<br>or (1.61 × 20 =) 32.2 (km)<br><br>If no workings shown accept an answer of 32 (km) and allow an answer of 30 (km) or 32.2 (km) |
| 6(b) (100 ×) 180 ÷ 3600 or $\frac{180}{3600}$ or 1/20 or equivalent<br><br>5 (%) | M1<br><br>A1 | M0 for 3600 ÷ 180 unless sight of 1/20 or equivalent<br>Allow M1 for sight of 180 ÷ 3600 (= 20 or 30 or ....)<br>Accept '10% = 360, 5% = 180' for M1 A1<br><br>Allow M1 A1 form sight of 3600/180 = 5(%)<br><br>If no marks, award SC1 for an answer of 95% |
| 6(c) 5 ÷ 3 or 500 ÷ 3<br>1.6(66...) or 166(.66...)<br><br>167 (cm) or 1.67 (m) | M1<br>A1<br><br>A1 | Accept 501 ÷ 3<br>Ignore further incorrect digits beyond either 1.6 or 166 Accept 1.67 or 167. Allow 160,170 or 1.7<br><br>CAO<br>Do not accept 1.67 cm or 167 m (units incorrect) |
| *6(c) Alternative method using trials:*<br>*Charge for 1(.)66 is (£)4(.)98(p) or*<br>*1(.)67 is (£)5(.)01*<br><br>*167 (cm) or 1.67 (m)* | *M2*<br><br><br>*A1* | *M1 for correctly evaluated charge for at least 2 heights, provided trial is 184 ≥ h ≥ 150*<br><br>*CAO*<br>*Do not accept 1.67 cm or 167 m (units incorrect)*<br><br>*Note: 166 × 3 = 498, 167 × 3 = 501* |

| | | |
|---|---|---|
| 7(a) $(10 + 5) \times 3$ or $10 \times 3 + 5 \times 3$<br>(£)45 | M1<br>A1 | |
| 7(b) 72 | B1 | Allow unambiguous indication of both 27 and 45 |
| 7(c) $\frac{10}{67}$ | B1 | |
| 8(a) States or implies **'Can't tell'** with a reason, e.g.<br>'diagram doesn't show how accurate the homework was',<br>'it only gives the times spent on homework',<br>'doesn't say what the students marks were',<br>'doesn't show if students got homework correct or not', | E1 | Allow, e.g.<br>'the given information (only) shows they attempt homework'<br>'graph doesn't give this detail',<br>'diagram doesn't show data for that',<br>'because it doesn't specify it',<br>'because there is no data about it',<br>'it says "attempted" doesn't say if they were right or wrong',<br>'it (only) shows times',<br>'doesn't show percentages',<br>'no results available',<br>'it doesn't say if they had it wrong or not',<br>'no marks'<br><br>Do not accept, e.g.<br>'we don't know how many marks there are to be earned',<br>'it shows frequency',<br>'doesn't show how much homework to get a mark',<br>'because there is no correlation with the graph',<br>'because it doesn't state what the homework was out of' |
| 8(b) 5 + 9 + 11 + 7 + 4<br>36 (students) | M1<br>A1 | Allow M1 if one error in working with 5 numbers (check diagram also, but intention to add must be clear)<br>CAO |
| 8(c) $\frac{11}{25}$ | B2 | ISW<br>B1 for .../25 or 11/... provided not from incorrect working<br>(e.g. 4 + 7 + 11 = 22, then 22/30 = 11/15 is B0)<br><br>B1 for an answer of 44% if 11/25 not previously seen |
| 9(a) 20 (knots) | B1 | |
| 9(b) 2.3(0) + 2.3(0) + 1.15<br>or 2.30 + 3.45<br>or 2 × 2.875<br>or 5 × 1.15<br>or equivalent<br>5.75 (miles per hour) | M1<br><br><br><br><br>A1 | Any correct method<br><br><br><br><br>ISW |

<table>
<tr><td>10. (Fresh water charge £) 20 × 1.1(0)<br><br>(Waste water charge £) 0.80 × 20 × 1.50<br><br>(Total bill £22 + £24 =) (£) 46</td><td>M1<br><br>M2<br><br>A1</td><td>(= £22)<br><br>(= £24)<br>M1 for either 0.80 × 20 (= 16m$^3$) or 20 × 1.50 (= 30)<br><br>CAO<br><br>Award M2 (waste water) and SC1 for an answer of £28.4(0) (from fresh water (4 × 1.10 =) £4.40 + £24 for waste)<br>OR<br>Award M1 and SC1 for any one of the following:<br>• sight of (£)22 and (£)17.6(0) (22 & 0.8 × 22)<br>• an answer of (£)39.6(0) (22 + 0.8 × 22)</td></tr>
<tr><td>11.(Cost of buying pears is £) 2.5 × 3.40 or<br>alent<br>(£)8.5(0)<br><br>(Cost of apples is £) 12.40 – 8.50<br>(£)3.9(0)<br><br>(Cost of 1 kg of apples is £) 3.9(0) ÷ 3<br>(£) 1.3(0)</td><td>M1<br>A1<br><br>M1<br>A1<br><br>M1<br>A1</td><td><br>Accept 850p or £8.50p<br>Do not accept 8.50p or £850<br><br>FT ‘their £8.50’<br>FT ‘their 8.50’ provided ≠ (£)3.40<br><br>FT ‘their £3.90’<br>FT ‘their 3.90’ provided ≠ whole number multiple of 3<br>FT provided correct to a penny (rounded or truncated)<br><br>(Note: 12.40 – 3.40 = 9, 9 ÷ 3 = (£)3 is awarded M0 A0 M1 A0 M1 A0)</td></tr>
<tr><td>12. Method of comparison, e.g.<br>• per 50g<br>• for 2000g<br><br>Correctly evaluated comparison for 2 of the 3 sizes<br><br>Correctly evaluated comparison for all sizes, may be different methods for different stages, AND conclusion ‘(400g) Fusilli is best value for money’</td><td>M1<br><br>A1<br><br>A1</td><td>Needs to show attempt to compare at least 2 of the 3, e.g. comparing 500g<br>Allow for sight of 2 × (0.)65<br><br>Allow for sight of (£)1.3(0) or 130(p)<br>Ignore incorrect units<br><table><tr><td></td><td>50g</td><td>100 g</td><td>1 kg</td><td>2000g</td></tr><tr><td>Str 500g</td><td>12.5 p</td><td>25p</td><td>£2.50</td><td>£5</td></tr><tr><td>Fus 400g</td><td>12 p</td><td>24p</td><td>£2.40</td><td>£4.80</td></tr><tr><td>Rig 250g</td><td>13 p</td><td>26p</td><td>£2.60</td><td>£5.20</td></tr></table><table><tr><td></td><td>g per p</td><td>g per £</td></tr><tr><td>Str 500g</td><td>4 g</td><td>400 g</td></tr><tr><td>Fus 400g</td><td>4.166... g</td><td>416.66... g</td></tr><tr><td>Rig 250g</td><td>3.846... g</td><td>384.61... g</td></tr></table>Consistent units that are not obviously incorrect are required, or allow no units given<br><br>Examples:<br>• Comparison of 500g with 250g then 250g with 400g not a full comparison of all 3 sizes<br>• Comparison of 500g and 250g at 500g and then 500g and 400g at 2000g, possible M1, A1, A1</td></tr>
</table>