# GCSE MARKING SCHEME

**AUTUMN 2018**


**GCSE**
**MATHEMATICS – COMPONENT 2 (FOUNDATION TIER)**
**C300U20-1**

**INTRODUCTION**

This marking scheme was used by WJEC for the 2018 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.

# GCSE MATHEMATICS

## COMPONENT 2 - FOUNDATION TIER

## AUTUMN 2018 MARK SCHEME

| Eduqas Autumn 2018<br>Component 2: Foundation Tier | Mark | Comment |
|---|---|---|
| 1(a)(i) 2 x10.50 + 2 x 9.99 + 3 x 4.50 + 1 x 3.75<br>(21 +19.98+13.50 + 3.75)<br>= (£)58.23 | M1<br><br>A1 | |
| (ii)　　(£)60 | B1 | FT 'their £58.23' provided at least M1 awarded earlier, and equivalent difficulty. |
| 1(b)　2x10.50+9.99<br>=(£)30.99 | M1<br>A1<br><br>(5) | Or equivalent full method. |
| 2(a) 30, 45 and 60 | B2 | B1 for all 3 correct and 1 extra incorrect,<br>Or B1 for 2 correct and 1 missing. |
| 2(b) A correct demonstration that 37 is a factor of 888.<br>e.g. '888÷37 = 24, so 37 is a factor'<br>'$2^3$ x 3 x 37' ,'888÷8=111, 111÷3=37' | B1<br><br><br>(3) | |
| 3(a) (i) 0.7875 | B1 | Accept 63/80. |
| (ii) 0.79 | B1 | FT 'their 0.7875' provided that the rounding is of equivalent difficulty. |
| 3(b) 1288÷56(=23)　OR 1288÷23(=56) | E1<br><br>(3) | Allow equivalent methods that use repeated addition or subtraction. |
| 4(a) (£)6 + 9 x (£)3<br>= (£)33 | M1<br>A1 | |
| 4(b)<br><br>| Rides | With | Without |<br>| 3 | 15 | 14.4(0) |<br>| 4 | 18 | 19.2(0) |<br><br><br>Conclusion, 4 (rides) inserted or implied in working. | B1<br>B1<br><br><br><br>E1<br><br>(5) | OR (3 × £1.80 = £)5.4(0)<br>OR (4 × £1.80 = £)7.2(0)<br><br>If neither B1 marks awarded, award B1 for sight of (£)14.4(0) AND (£)19.2(0) |
| 5(a) 80(g) ÷ 32 x 5<br>= 12.5(g) | M1<br>A1 | The method may be seen in steps. |
| 5(b) (i) Assumption,<br>　e.g. 'All the pieces are the same size'<br>'the fat is evenly distributed'<br>　　(ii) Impact, which must be consistent with<br>　　　their assumption.<br>　e.g. 'If the pieces are not the same size, there<br>　　　could be more (or less) fat' | E1<br><br><br>E1<br><br><br><br>(4) | |

1
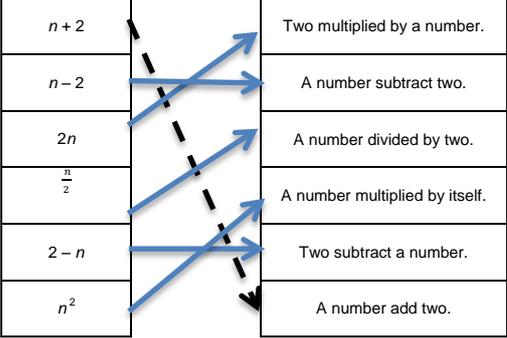
| | | | |
|---|---|---|---|
| 6.  | B2<br><br><br><br><br><br><br>(2) | B1 for matching 2, 3 or 4 expressions correctly. | |

| 7(a) Two criticisms of the presentation of the graph,<br>e.g. 'bars are different widths'<br>'vertical scale is not uniform'<br>'axes not labelled (frequency)'<br>'can't have less than 1 child (turquoise)' | E2 | E1 for only one correct statement.<br>Do not accept 'bars (of) different sizes' unless it is clear they mean widths. |
|---|---|---|
| 7(b)(i)   ⵊ⫼⫼  ⫼⫼⫼  ‖    and 6 filled in correctly | B1 | |
| 7(b)(ii) Correctly drawn bar graph.<br>        Uniform scale and labelled axes<br>        Bars of correct height and same width. | B1<br>B1<br><br>(5) | FT 'their table values' |
| 8(a) Valid explanation,<br>e.g. '28.8 means £28.80', '80p not 8p' | E1 | Sight of 28.80 is sufficient. |
| 8(b) (i) 0.14 x 16000<br>        (£)2240<br>    (ii)  (£16000 - £2240 = £)13760 | M1<br>A1<br>B1<br><br>(4) | Accept equivalent correct method.<br><br>FT 'their 2240' |

9(a)

| | Year 7 | Year 8 | Year 9 | Total |
|---|---|---|---|---|
| Boys | **73** | (75) | (74) | (222) |
| Girls | (87) | **77** | (72) | (236) |
| Total | (160) | (152) | **146** | (458) |

| | B2 | B1 for any 2 correct values |
|---|---|---|
| 9(b) 15 | B1 | |
| 9(c) Year 7 girl identified. | B1<br><br>(4) | FT 'their table' |

| | | | |
|---|---|---|---|
| 10(a) 2.5 hours indicated. | B1 | | |
| 10(b) 06:31 train from Kettering | B2 | B1 for choosing the 07:36 train or for stating, e.g. 'must arrive before 07:45' | |
| 10(c) 5 x 60 x 11.15 = 3345 (litres) | M1 A1 (5) | The M1 may be implied by sight of the correct answer, or for sight of 300 x 11.15 or for 5 x 669 or 60 x 55.75 | |
| 11(a) 73 AND 87 | B1 | | |
| 11(b) 'multiply the previous term by 2' . | E1 | Accept 'x2', 'double', 'multiply by 2' or equivalent | |
| 11(c)(i) ($15^2$+3=) 228 | B1 | | |
| 11(c)(ii) Shows, by considering differences, that the $7^{th}$ term is 52. e.g 28 + 11 + 13 = 52 | B1 | | |
| 11(c)(iii) Indicates 'Hannah' and explains that working out $100^2$ +3 is quicker than repeated addition. | E1 (5) | | |
| 12(a) (i) 3500 (grams) | B1 | CAO | |
| 12(a) (ii) 3500 : 475 or 3.5 : 0.475 = 140 : 19 | M1 A1 | For conversion to same units on both sides of the ratio. FT 'their 3500' for M1. CAO | |
| 12(b) 2440 ÷ 8 x 5 OR 2440 ÷ 8 x 3 1525 OR 915 (2440 – 1525 =) 915 AND (2440 – 915 =) 1525 Mass of Strawberries 1525 (g) Mass of Raspberries 915 (g) | M1 A1 B1 (6) | B1 awarded if the sum of their answers is 2440, provided M1 awarded. | |
| 13(a) 1.75 | B1 | | |
| 13(b) 2880 | B1 | | |
| 13(c) ($t$ =) 6 | B2 (4) | Award B1 for sight of 75 ÷ 12.5 or 75 = 12.5 x $t$ | |
| 14(a) Converting to a suitable form for comparison, e.g. $\frac{5}{9}$ = 0.555, $\frac{139}{250}$ = 0.556 and 56% = 0.560 or 55.5….% or 55.6% and 56% = $\frac{5}{9}$, $\frac{139}{250}$, 56% (or equivalent) | M1 A1 | Allow for at least 2 numbers in a comparable format. *Alternative method using fractions: 1251/2250, 1250/2250 M1* Provided no incorrect working seen | |
| 14(b) 237 ÷ 100 x 360 853.2 | M1 A1 | *Alternative method:* 0.37x360 + 360 + 360 M1 853.2 A1 | |
| 14(c) $\frac{1750}{2015}$ (x 100 ) = 86.8 (%) The trailer is in the ACCEPTABLE range. | M1 A1 E1 (7) | FT 'their derived %' dependent on M1 awarded. <u>Alternative method:</u> 0.85 x 2015 M1 = 1712.75 A1 So ACCEPTABLE. E1 dep on M1 | |

3

| | | |
|---|---|---|
| 15(a) (0, 1) | B1 | |
| 15(b)(i)  All three points correctly plotted | B1 | |
| 15(b)(ii) y=5 | B1 | FT from 'their points' provided it is a straight line. |
| 15(c) Indicates (5,11) AND (20, 41) AND (31,63) | B2<br><br>(5) | B1 for 2 correct co-ordinates and none incorrect, or 3 correct and 1 incorrect. |
| 16(a) Appropriate reason given,<br>e.g. 'only 20 people asked',<br>'should ask more people',<br>'teenagers may not be at the library at this time',<br>'we don't know what is meant by "too much"', | E1 | Allow e.g.'teenagers who are at the library may not watch much TV'. |
| 16(b) Two criticisms from:<br>'no time period specified', 'it doesn't find out about the number of hours' ' 3 overlaps', 'no zero' | E2<br><br>(3) | Allow '9+ is too vague' |
| 17(a) Sight of 6.5(cm) ± 0.2(cm)<br>                        or 65(mm) ± 2(mm)<br>      6.5 x 6.5<br><br>      = 42.25 (cm$^2$)<br><br>       42.25 = length x 5<br>      42.25÷ 5<br>       8.45 (cm) | B1<br><br>M1<br><br>A1<br><br>B1<br>M1<br>A1 | <br><br>FT 'their 6.5'.<br>Do not accept different '6.5's.<br><br><br>FT 'their 42.25'.<br><br><br>If no marks awarded, award SC1 for 'their area ÷ 5 evaluated correctly. |
| 17(b)(i) (isosceles)Trapezium | B1 | CAO, but accept incorrect spelling. |
| 17(b)(ii) Completes a parallelogram with an area of 12cm$^2$. | B2<br><br>(9) | B1 for any parallelogram<br>B1 for area of 12cm$^2$.<br>Must use the given line for B2 |
| 18(a) 1 – [0.1+0.17+0.24+0.25] (= 0.24)<br><br>                ÷ 2<br>      Table completed with 0.12 and 0.12 | M1<br><br>m1<br>A1 | Mark correct responses completed into the table.<br><br><br>CAO |
| 18(b) 0.51 | B1 | |
| 18(c) 600 x 0.17<br>         = 102 | B1<br>B1<br>(6) | *Alternative:*<br>*1/6 = 0.166(…) < 0.17            B1*<br>*1/6 of 600 = 100, so Exp(2) > 100    B1* |
| 19    93.5(m)   and    94.5(m) in correct order | B2<br><br>(2) | B1 for either  93.5  or 94.5 seen. |
| 20*(a)  1 : 1 : 3 in any order | B1 | Allow multiples of this ratio |
| 20*(b) 3/5 or equivalent | B1<br><br>(2) | FT '<u>their 3</u>'<br>   'their 1 + 1 + 3' |

4

| | | |
|---|---|---|
| 21*(a)  w = 7/e | B1 | CAO. Accept 7/e = w |
| 21*(b)<br>3w + 15 – f = g   or  3w + 15 = f + g<br>$\qquad$ 3w = f + g- 15<br>$\qquad$ w = <u>f + g- 15</u><br>$\qquad\qquad$ 3 | B1<br>B1<br>B1 | FT until 2$^{nd}$ error occurs<br><br>Mark final answer<br><br>*Alternative method*<br>*$\quad$ w + 5 –f/3 = g/3 $\qquad\qquad$ B1*<br>*$\quad$ w = g/3 + f/3 – 5 $\qquad\qquad$ B2*<br>*Mark final answer, if further incorrect manipulation, award final B1 not final B2* |
| | (4) | |
| 22*.  2.2 x 25 000 (cm) (= 55 000 cm)<br>$\qquad\qquad$ 0.55 (km) | M1<br>A1 | Allow for sight of 55000, ignoring any units given<br>CAO<br>*Alternative:*<br>*1 cm (= 250 m =) 0.25 **km** or ¼ **km** $\quad$ B1*<br>*( ¼ x 2.2 =)  0.55( km) $\qquad\qquad$ B1* |
| | (2) | |
| 23*(a) (C =) 2 × π × 14 or π × 28<br>Answer in the range<br>87.9 to 88  (cm)   or 28 π (cm) | M1<br>A1 | |
| 23*(b)<br><br>(72 ÷ 24 =) 3 (bags of spoons)<br>$\qquad$ AND<br>(72 ÷ 18 =) 4 (boxes of forks) | B3 | <u>Answers in the table take precedence over working</u><br>B2 for any of the following:<br>• (least amount to buy) 72<br>• the correct number of bags and boxes for 'their number of common multiples' found from making only 1 error in listing<br><br>B1 for any of the following:<br>• 24 = 6 x 4 and 18 = 6 x 3, or similar provided the factors are broken down sufficiently to be able to find the LCM<br>• the correct number of bags and boxes for 'their number of common multiples' found from making 2 errors in listing |
| (3 x 19.95 and  4 x 15.55 =)<br> (£) 59.85 AND (£) 62.2(0) | M1 | FT use of 'their 3 bags of spoons' and 'their 4 boxes of forks' provided at least B1 previously awarded |
| $\qquad\qquad$ = (£) 122.05 | A1 | CAO |
| | (7) | |

| 24*. Two unique possible reasons: | | E1 for any 1 possible reason |
|---|---|---|
| • Didn't use raw data | E1 | Didn't use raw data includes, e.g.<br>• 'median is (actually) 65(.15 cm)'<br>• 'used rounded results'<br>• 'depths were to the nearest 10 cm' |
| • Insufficient data | E1 | Insufficient data includes, e.g.<br>• 'needs to take more readings of depth'<br>• 'only recorded at one time of the day'<br>• 'may only have taken readings near the banks of the river'<br><br>If the actual median is calculated it must be correct or approximately 65 (cm)<br><br>*Depths recorded in order are 30, 50, 60, 80, 90, 100* |
| | (2) | |

| | | |
|---|---|---|
| 25*. Method to compare, e.g. sight of<br>   • 1ml of each sight of<br>     $49 \div 87.5$ and $72 \div 125$<br>   • Per 1p sight of $87.5 \div 49$ and $125 \div 72$<br>   • Using 49p for 87.5ml sight of<br>     $49 \times 125 \div 87.5$<br>   • Using 72p for 125ml sight of<br>     $72 \times 87.5 \div 125$ | M1 | |
| Accurate comparison calculated with a conclusion<br>87.5ml tube is better value<br><br>Examples of evaluations:<br>   • 1ml is 0.56(p) and 0.576(p)<br>   • Per 1p is<br>     1.78(5...ml) and 1.73(6..ml)<br>   • 49p for 87.5ml gives 70(p) for 125ml<br>   • 72p for 125ml gives 50.4(p) for 87.5p | A1<br><br><br><br><br><br><br><br><br>(2) | If units are given they must be correct<br>Allow reasonable rounding or truncation<br>for comparison<br><br>Allow 0.576(p) given as 0.57(p) or 0.58(p)<br><br>Allow 1.78(5...ml) given as 1.78(ml) or<br>1.79(ml) and 1.73(6..) given as 1.73 or<br>1.74<br><br>Allow 50.4(p) given as 50(p) |
| 26(a) $\tan 42 = x/12$<br>    $x = 12 \times \tan 42$<br>    $x = 10.8(\ldots)$ | M1<br>M1<br>A1 | Accept an answer of 11(cm) from correct<br>working. |
| 26(b) $\sin a = {}^{10}/_{80.}$ or equivalent<br>    $a = \sin^{-1}({}^{10}/_{80})$<br>    $a = 7(.18°)$ | M1<br>A1<br>A1<br>(6) | |
| 27*(a) 3 | B1 | Accept (0, 3)<br>Do not accept (3, 0) |
| 27*(b) -12 | B1 | Accept (-3, -12)<br>Do not accept (-12, -3) |
| 27*(c) (1, 4) | B1 | Do not accept '4' or (4, 1) |
| 27*(d) (-1, 0) and (3, 0) | B2<br><br>(5) | With no extra coordinates<br>B1 for sight of '-1' and '3' |
| 28*. $15000 \times 1.034^{22}$<br><br>    (= £) 31299(.91...) | M2<br><br>A1<br>(3) | M1 for indication of $15000 \times 1.034$ or<br>equivalent<br>Accept (£)31300 |