REVISE
.wales

# F2.03 — Indices — positive integral powers

*Mark schemes for the F2.03 question pack*

*Spec 1.3.1 — Unit 2*

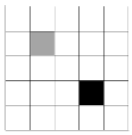
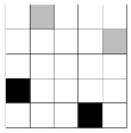
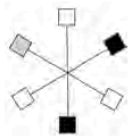
SOLUTIONS · 2025 SPECIFICATION

*Mark schemes for the 8 questions in the corresponding revise.wales question pack (13 marks total). Sources: legacy WJEC GCSE papers, WJEC SAM, and custom-authored mark schemes.* 

| | | | | |
|---|---|---|---|---|
| 1.(a) | 1 and −5 | | B2 | B1 for 1.<br>B1 F.T. for 'their 1' – 6. |
| 1.(b) | – 6 + 70<br>= 64 | | B1<br>B1 | B1 for sight of – 6 OR 70 (but not −70).<br>B0 for −6x + 70y.<br>C.A.O. Mark final answer. |
| 1.(c) | 6k – 5m | | B2 | Must be an expression for B2.<br>B1 for sight of (+)6k OR sight of – 5m.<br>B1 for 6k + – 5m.<br>Mark final answer. |

## WJEC GCSE MATHEMATICS

## SUMMER 2019 MARK SCHEME

| GCSE Mathematics<br>Unit 1: Intermediate Tier | Mark | Comments |
|---|---|---|
| 1.<br>23 – (4 + 2) × 3 = 5 TRUE<br>7/10 + 2/5 = 9/15 FALSE<br>½ of 1/8 = 1/4 FALSE<br>25% of 0·4 = 0·1 TRUE<br>28 – 3 × 2 + 5 = 55 FALSE | B3 | For all 5 correct<br>B2 for 4 correct.<br>B1 for 3 correct |
| 2.(a)<br>Type: Yellow <100, Yellow ≥100, Blue <100, Blue ≥100<br>Num.: (8), 7, 4, 6 | B2 | For all three correct.<br>B1 for 1 or 2 correct.<br>If no marks awarded allow B1 for all correct tallies seen. |
| 2.(b) Any valid statement that indicates that the numbers (in the table) are added (to make 25).<br>e.g. 'add the frequency' | E1 | Allow 'add them up'.<br>Allow sight of '8 + 7 + 4 + 6 (= 25).' |
| 2.(c) $\frac{8}{25}$ or equivalent ISW | B2 | B1 for x/25 with x<25.<br>B1 for 8/y with y >8.<br>Penalise incorrect notation −1.<br>e.g. '8 out of 25', '8 : 25', '8 in 25'. |
| 3.(a)  | B1 | |
| 3.(b)  | B1 | |
| 3.(c)  | B1 | |
| 4.(a) −3<br>1 | B1<br>B1 | OR FT 'their −3' + 4. |
| 4.(b)(i) 21 | B1 | |
| 4.(b)(ii) 191 | B1 | |
| 4.(c) Divide (the previous number) by 3. | E1 | Allow '÷3'.<br>Do not accept n÷3. |

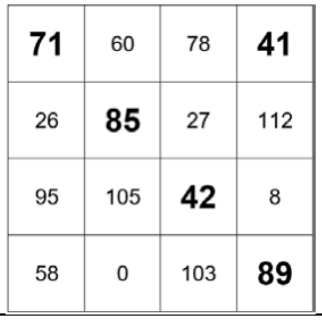
**WJEC GCSE MATHEMATICS**

**AUTUMN 2021 MARK SCHEME**

| **Unit 1: Intermediate Tier** | Mark | Comments |
|---|---|---|
| 1.(a) (x =) 180 – 90 – 37 or equivalent.<br>= 53(°) | M1<br>A1 | |
| 1.(b) (a = ) 51(°)<br>(b = ) 360 – (51 + 82 + 153) or equivalent.<br>= 74(°) | B1<br>M1<br>A1 | FT 'their 51', i.e. 125 – 'their 51' provided 'their 51' < 125. |
| 2.(a) $\frac{1}{9}$ | B1 | |
| 2.(b) 0·016 | B1 | |
| 2.(c) 0·015 | B1 | |
| 3.(a) 1/10 or 0·1 | B1 | Mark final answer. |
| 3.(b) Sight of 27 AND 4<br>(27 ÷ 4 =) 6·75 | B1<br>B1 | FT if at least 27 or 4 correct and of equivalent difficulty (i.e. not leading to a whole number answer). Answer must be a decimal |
| 4.(a) (Volume =) 5 × 3 × 2<br>= 30 ($cm^3$) | M1<br>A1 | Any additional calculation e.g. 30 ÷ 2 = 15 is M0. |
| 4.(b) Sight of<br>5 × 3 (=15) AND 5 × 2 (=10) AND 3 × 2 (=6)<br>(Total Surface Area =) (5×3 + 5×2 + 3×2) × 2<br>62 ($cm^2$) | B1<br>M1<br>A1 | For addition of all six surface areas. (Must be three different pairs.) FT 'their 15', 'their 10' and 'their 6' C.A.O. |
| 5. Sight of 9 AND 49<br>n + 9 = 49<br>(n =) 40 | B1<br>M1<br>A1 | Any unambiguous indication that this linear relationship is being considered (including 'trial and improvement'). FT their $\sqrt{81}$ (≠81) AND their $7^2$ (≠7) for M1 and possibly A1 if at least one correct value used. FT for M1 only if neither correct value used. Award M1 if 49 – 9 seen. Mark final answer. |
| 6. Indicates 2 (letters out of 6 gain points)<br>(Expected number of wins =) $\frac{2}{6}$ × 24 or equivalent<br>= 8<br>(Points gained =) 8 × 10<br>= 80 (points) AND<br>'No' (Leah is not expected score 100 points) | B1<br>M1<br>A1<br>M1<br>A1 | Any unambiguous indication.<br>FT 'their stated number of '10 point' letters'.<br>Award M1A1 for 8/24 suggesting '8 wins out of 24'<br>FT 'their derived 8' × 10 only if 'their derived 8' < 24.<br>FT their derived number of points |
| *Alternative method 1*<br>*Indicates 2 (letters out of 6 gain points)*<br>*(Each letter expected to be drawn) 24 (times)*<br>*6*<br>*= 4 (times)*<br>*(Points gained = ) 4 × 2 × 10*<br>*= 80 (points) AND*<br>*'No' (Leah is not expected score 100 points)* | *B1*<br>*M1*<br>*A1*<br>*M1*<br>*A1* | *Any unambiguous indication.*<br>*FT 'their derived 4' and 'their stated 2'.*<br>*FT their derived number of points.* |

**WJEC GCSE MATHEMATICS**

**AUTUMN 2021 MARK SCHEME**

| **Unit 2: Foundation Tier** | Mark | Comments |
|---|---|---|
| 1.(a) 5169 | B1 | |
| 1.(b) 6502 | B1 | |
| 1.(c) 186 | B1 | |
| 1.(d) 45 | B1 | |
| 2.(a) 5, 5, 5, 5 | B1 | |
| 2.(b) Exactly two 3s and any other two numbers | B1 | Accept in any order. |
| 2.(c) Exactly one 2 and any other three numbers | B1 | Accept in any order. |
| 3.(a) 40 065 | B1 | |
| 3.(b) 5400 | B1 | |
| 4.(a) rhombus | B1 | |
| 4.(b) equilateral triangle | B1 | |
| 5.   | B3 | B2 for 3 rows or 3 columns with a total of 250.<br>B1 for 1 or 2 rows or 1 or 2 columns with a total of 250. |
| 6.(a) 98 | B1 | |
| 6.(b) Subtract 13 (from the previous term) | B1 | Accept -13, goes down in 13s, etc. |
| 6.(c) x-2 (years old) | B1 | Mark final answer. |
| 7.(a) Sum of numbers (262)<br>Sum of numbers ÷ 4<br>65.5 or equivalent | M1<br>m1<br>A1 | Allow for an unsupported value between 173 and 351.<br>Award this m1 for 'their sum' ÷ 4<br>CAO. Allow 131/2.<br><br>If no marks awarded, allow SC1 for (64 + 89 + 83 + 26 ÷ 4 =) 242.5 or equivalent. |
| 7.(b) (65.5 + 1 =) 66.5 | B1 | F.T. 'their mean' from (a). Allow 133/2. |
| 8.(a) 23.04 | B1 | Accept $23\ ^{1}/_{25}$ or equivalent e.g. 576/25 |
| 8.(b) 7.9 | B1 | Accept $7\ ^{9}/_{10}$ or equivalent e.g. 79/10 |
| 8.(c) 0.04 × 325 or equivalent<br>= 13 ISW | M1<br>A1 | |
| 9. (Oliver's number is) 90 | B3 | B2 for a final answer between 40 and 95 satisfying 2 of the 3 conditions.<br>(45, 54, 60, 72)<br>B1 for a final answer between 40 and 95 satisfying only 1 of the 3 conditions.<br>(40, 42, 44, 46, 48, 50, 52, 56, 58, 62, 63, 64, 66, 68, 70, 74, 75, 76, 78, 80, 81, 82, 84, 86, 88, 92, 94) |
| OC 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 |

| | | |
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| 14. Sight of 9 AND 49<br>n + 9 = 49<br><br><br><br><br>(n =) 40 | B1<br>M1<br><br><br><br><br><br>A1 | <br>Any unambiguous indication that this linear relationship is being considered (including 'trial and improvement').<br>FT their $\sqrt{81}$ (≠81) AND $7^2$ (≠7) for M1 and possibly A1 if at least one correct value used.<br>FT for M1 only if neither correct value used.<br>Award M1 if 49 – 9 seen.<br>Mark final answer. |
| 15. Indicates 2 (letters out of 6 gain points)<br>(Expected number of wins =) $\frac{2}{6} \times 24$ or equivalent<br>= 8<br>(Points gained =) 8 × 10<br>= 80 (points) AND<br>'No' (Leah is not expected score 100 points) | B1<br>M1<br><br>A1<br>M1<br>A1 | Any unambiguous indication.<br>FT 'their stated number of '10 point' letters'.<br><br>Award M1A1 for 8/24 suggesting '8 wins out of 24'<br>FT 'their derived 8' × 10 only if 'their derived 8' < 24.<br><br>FT their derived number of points |
| *Alternative method 1*<br>*Indicates 2 (letters out of 6 gain points)*<br>*(Each letter expected to be drawn) $\frac{24}{6}$ (times)*<br>*= 4 (times)*<br>*(Points gained = ) 4 × 2 × 10*<br>*= 80 (points) AND*<br>*'No' (Leah is not expected score 100 points)* | *B1*<br>*M1*<br><br>*A1*<br>*M1*<br>*A1* | *Any unambiguous indication.*<br><br><br><br>*FT 'their derived 4' and 'their stated 2'.*<br><br>*FT their derived number of points.* |
| *Alternative method 2*<br>*Indicates 2 (letters out of 6 gain points)*<br>*(Expected number of wins =) $\frac{2}{6} \times 24$ or equivalent*<br>*= 8*<br>*(Number of wins required =) $\frac{100}{10}$*<br>*= 10 (wins) AND*<br>*'No' (Leah is not expected score 100 points)* | *B1*<br>*M1*<br><br>*A1*<br>*M1*<br><br>*A1* | *Any unambiguous indication.*<br>*FT 'their stated number of '10 point' letters'.*<br><br>*Award M1A1 for 8/24 suggesting '8 wins out of 24'*<br><br><br>*FT their derived number of expected wins.*<br>*Note for Alternative method 2*<br>*If 'number of wins required' is calculated before calculating 'number of expected wins' then the conclusion ('AND') will be attached to the 8 rather than the 10.* |
| 16. 4x + 5 = 57 or equivalent<br>4x = 52<br>x = 13 | M1<br>A1<br>A1 | <br><br>FT from 4x = k.<br>Accept x = k/4 (but, if on FT k is a multiple of 4, final answer must be given as a whole number.)<br>M1A1A0 for 'x = 52/4'<br>Mark final answer.<br>Allow (M1)A1A1 for a correct embedded answer BUT only (M1)A1A0 if contradicted by x ≠ 13. |
| 17. 3, 4, 4, 9 OR 3, 3, 5, 9. | B3 | B1 for a range = 6.<br>B1 for a total = 20.<br>B1 for a median = 4.<br>Penalise use of negative or non-integer values −1.<br>FOUR numbers must be shown, otherwise B0. |
| 18. Use of Distance / Time<br>$\frac{100}{2{\cdot}5}$ or equivalent<br>= 40 (mph) | M1<br>M1<br><br>A1 | Allow M1 even for e.g. 100 / 2·3(0) or 100/150.<br><br><br>C.A.O. |

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|---|---|---|
| | | inclusive. |
| 8.(a) 7.29 or $\frac{729}{100}$ or $7\ \frac{29}{100}$ | B1 | B0 for 729 ÷ 100. |
| 8.(b) 3.4 or $\frac{17}{5}$ or $3\ \frac{2}{5}$ | B1 | B0 for 17 ÷ 5. |
| 8.(c) $\frac{60}{100} \times 28$ or equivalent<br>= 16.8 or $\frac{84}{5}$ or $16\ \frac{4}{5}$ | M1<br>A1 | <br>M1 A0 for 84 ÷ 5. |

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| 5.(a) 500g | B1 | |
| 5.(b) 7m | B1 | |

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| 3(a) $79 \div 1.8^2$<br>24(.3827…) | M1<br>A1 | Ignore subsequent rounding if 24(.3827…. ) seen.<br>Accept rounded or truncated answers e.g. 24.3 or 24.4<br>Do not accept an answer of 25 unless 24(.3827…) seen<br>If correct answer seen with 79 ÷ 1.8 award M1A1 |
| 3(b) (Time taken =) 3 hours 15 mins or 195 mins | B2 | B1 any one of the following:<br>• clearly calculating 1½ hrs + 15 mins + 20 mins + 25 mins + 45 mins<br>• Allow use of 01:30 + 00:15 + 00:20 + 00:25 + 00:45<br>• 1 hour 45 mins or 105 mins (1 ½ hours omitted)<br>• 3 hours or 180 mins (15 mins omitted)<br>• 2 hours 55 mins or 175 mins (20 mins omitted)<br>• 2 hours 50 mins or 170 mins (25 mins omitted)<br>• 2 hours 30 mins or 150 mins (45 mins omitted) |
| (Earliest arrival home is) 6:15 (pm) or 18(:)15 | B1 | Award B2 B0 for 6:15 am<br>FT 'their 3 hours 15 mins' or 'their 195 mins' provided B1 awarded |
| *3(b) Alternative method – adding times to 3 p.m.*<br>*(Earliest arrival home is) 6:15 (pm) or 18(:)15* | *B3* | *B2 for:*<br>• *an answer of 6:15 am*<br>• *an answer that includes correct step-by-step calculations with at most one error or omission. FT from their one error or omission*<br>*B1 for*<br>• *an answer that includes correct step-by-step calculations with at most two errors or omissions. FT from their 2 errors or omissions*<br>• *3 correctly calculated steps. FT from their 2 errors or omissions* |
| 3(c)(i) (size order) 1, 1, 1, 2, 3, 3, 6<br>(median=) 2 | M1<br>A1 | Accept indication of median is 2 e.g. circling of 2 when numbers are in size order.<br>Do not award M1A1 for an unsupported answer of 2.<br>Award SC1 for an unsupported answer of 2. |
| 3(c)(ii) 1 | B1 | |
| 3(c)(iii) 5 | B1 | |



End of solutions