# N5

National
Qualifications
SPECIMEN ONLY

**SQ26/N5/02**

# Lifeskills Mathematics
# Paper 2

# Marking Instructions

These Marking Instructions have been provided to show how SQA would mark this Specimen Question Paper.

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**Part One: General Marking Principles for National 5 Lifeskills Mathematics**

*This information is provided to help you understand the general principles you must apply when marking candidate responses to questions in this Paper. These principles must be read in conjunction with the specific Marking Instructions for each question. The marking schemes are written to assist in determining the 'minimal acceptable answer' rather than listing every possible correct and incorrect answer.*

**(a)**   Marks for each candidate response must <u>always</u> be assigned in line with these general marking principles and the specific Marking Instructions for the relevant question.

**(b)**   Marking should always be positive, ie marks should be awarded for what is correct and not deducted for errors or omissions.

**(c)**   Credit must be assigned in accordance with the specific assessment guidelines.

**(d)**   Candidates may use any mathematically correct method to answer questions except in cases where a particular method is specified or excluded.

**(e)**   Working subsequent to an error must be followed through, with possible credit for the subsequent working, provided that the level of difficulty involved is approximately similar. Where, subsequent to an error, the working is easier, candidates lose the opportunity to gain credit.

**(f)**   Where transcription errors occur, candidates would normally lose the opportunity to gain a processing mark.

**(g)**   Scored out or erased working which has not been replaced should be marked where still legible. However, if the scored out or erased working has been replaced, only the work which has not been scored out should be judged.

**(h)**   Unless specifically mentioned in the specific assessment guidelines, do not penalise:

- Working subsequent to a correct answer
- Correct working in the wrong part of a question
- Legitimate variations in solutions
- Bad form
- Repeated error within a question

**Part Two: Specific Marking Instructions for each question**

| Question | | | Marking scheme<br>Give one mark for each • | Max<br>mark | Illustrations of evidence<br>for awarding a mark at each • |
|---|---|---|---|---|---|
| 1 | a | | **Ans: 25·75 (km)**<br><br>•¹ Process: calculate total km | 1 | •¹ 25·75 (km) |
| 1 | b | | **Ans: 65·22 (m/min)**<br><br>•¹ Strategy: know to find speed<br><br>•² Process: calculate speed correctly | 2 | •¹ 1500 ÷ 23<br><br>•² 65·22 (m/min) |
| 1 | c | | **Ans: No, with reason**<br><br>•¹ Strategy: know to find time<br><br>•² Process: calculate time correctly | 2 | •¹ 10 ÷ 25 or alternative strategy<br><br>•² 0·4 × 60 = 24 mins — no, slower by 6 mins |
| 2 | a | | **Ans: £68**<br><br>•¹ Strategy: start to find cost<br><br><br>•² Process: calculate total cost | 2 | •¹ Add or 4 × £5 = (£)20 or 4 × £12 = (£)48 or (4 × 3) + (4 × 3) + (4 × 6) = (£)48 or alternative strategy<br><br>•² £68 |
| 2 | b | | **Ans: Yes, with reason**<br><br>•¹ Strategy and process: identify cost for family if buying wristbands<br><br>•² Communication: state conclusion | 2 | •¹ 4 = £91 or 4 × £35 = £140<br><br><br>•² Yes, because £68 < £91 and £68 < £140 |

| 2 | c | | Ans: A family of four unlimited ride wristband is the cheapest | 4 | |
|---|---|---|---|---|---|
| | | | $\bullet^1$ Process: calculate cost of tokens for family | | $\bullet^1$ (£)84 |
| | | | $\bullet^2$ Process: calculate total cost of fun park passes and tokens for family | | $\bullet^2$ (£)104 |
| | | | $\bullet^3$ Process: calculate cost of unlimited ride wristbands for family | | $\bullet^3$ (£)91 |
| | | | $\bullet^4$ Communication: state cheapest | | $\bullet^4$ A family of four unlimited ride wristband is cheapest |
| 3 | a | i | Ans: $(\overline{x} =)$ 48·7 | 1 | |
| | | | $\bullet^1$ Process: calculate mean | | $\bullet^1$ $(\overline{x} =)$ 48·7 |
| 3 | a | ii | Ans: $(s =)$ 1·24 | 3 | |
| | | | $\bullet^1$ Process: calculate $(x - \overline{x})^2$ | | $\bullet^1$ 0·81, 0·16, 2·25, 0·64, 3·24, 0·64 |
| | | | $\bullet^2$ Process: substitute into formula | | $\bullet^2$ $\sqrt{\dfrac{7.74}{5}}$ <br><br> Use of alternative formula in part: the second mark can be awarded for correct calculation of $\sum x^2 = 14\,237 \cdot 88$ |
| | | | $\bullet^3$ Process: calculate standard deviation | | $\bullet^3$ $(s =)$ 1·24 without working, only the mark for the mean is available. |

| 3 | b | | Ans:  The athlete's times are slower under the coach. The athlete is more consistent.<br><br>•[1] Communication:  make valid comment comparing means<br><br><br><br><br><br>•[2] Communication:  make valid comment comparing standard deviation | 2 | •[1] valid comment, eg:<br>The athlete's performance is worse.<br>The mean is higher so the athlete's performance is poorer.<br><br>Some **unacceptable** answers:<br>The average/mean is higher.<br>The new coach has a higher mean than before.<br><br>•[2] Valid comment, eg:     There is a smaller range of times.<br>The times are less spread out.<br>Some **unacceptable** answers, eg:  The standard deviation is lower. |
| 3 | c | i | Ans: 49·0 (s)<br><br>•[1] Process:  calculate the mean | 2 | •[1]  49·0 (s) |
| 3 | c | ii | Ans: 48·0 (s)<br><br>•[1] Process:  calculate the median | 1 | •[1] 48·0 (s) |
| 3 | d | | Ans:  Median, with reason<br><br>•[1] Communication:  state median with reason | 1 | •[1] median with reason. Reason must refer to the fact that the mean is affected by one very high time or the median is closer to the majority of the times. |

| 4 | a | | Ans: £2925 •¹ Process: calculate A | 1 | •¹ £2925 |
|---|---|---|---|---|---|
| 4 | b | | Ans: £935·50 •¹ Process: calculate monthly repayment | 1 | •¹ 11 226 ÷ 12 = £935·50 |
| 4 | c | | Ans: £234 •¹ Strategy: know to find difference •² Process: find difference | 2 | •¹ (5730 × 2) − 11 226 •² £234 |
| 4 | d | | Ans: £6375 •¹ Strategy: know to calculate total cost •² Process: calculate total cost | 2 | •¹ 5000 × 1·275 •² £6375 |
| 4 | e | | Ans: £645 •¹ Process: calculate difference | 1 | •¹ £645 |
| 4 | f | | Ans: Yes, store card is cheaper by £334·50 •¹ Strategy: know how to calculate costs •² Process: carry out calculations correctly •³ Strategy: compare with EasyBank •⁴ Communication: state conclusion with reason | 4 | •¹ subtract 10% add 19·9% •² 5000 − 500 = 4500 × 1·199 = 5395·50 •³ 5730·00 > 5395·50 •⁴ Yes, store card is a good option because cheaper by £334·50 |

| 5 | a | | Ans: 22 pupils | 5 | |
|---|---|---|---|---|---|
| | | | $\bullet^1$ Strategy: know correct substitution and calculation in appropriate equation | | $\bullet^1$ $V = \pi \times 4^2 \times 9$<br>   $= 452 \cdot 16$ (cm$^3$) |
| | | | $\bullet^2$ Process: calculate volume of diluted orange | | $\bullet$ Accept $\pi$ accurate to 2 or more decimal places |
| | | | $\bullet^3$ Strategy: know to find number of pupils | | $\bullet^2$ Juice = (2 + 2 × 4) litres<br>   10 000 (cm$^3$) |
| | | | $\bullet^4$ Process calculate | | $\bullet^3$ 10 000 ÷ 452·16 |
| | | | $\bullet^5$ Communication: correct rounding | | $\bullet^4$ = 22·11 |
| | | | | | $\bullet^5$ 22 pupils |
| 5 | b | | Ans: 8 cm | 4 | |
| | | | $\bullet^1$ Strategy: know to find volume in each glass | | $\bullet^1$ 10 000 ÷ 25 = 400 |
| | | | $\bullet^2$ Strategy: make equation to find height | | $\bullet^2$ 400 = $\pi \times 4^2 \times$ height |
| | | | $\bullet^3$ Process: calculate height | | $\bullet^3$ = 7·96 cm |
| | | | $\bullet^4$ Communication: round to nearest cm | | $\bullet^4$ 8 cm |

| 6 | a | | Ans: £473·21 | 6 | |
|---|---|---|---|---|---|
| | | | $\bullet^1$ Strategy/process: Select London accommodation and calculate 2 nights | | $\bullet^1$ 9 × 2 = (£)18 |
| | | | $\bullet^2$ Strategy: Select Berlin accommodation | | $\bullet^2$ €13 × 12 = (€)156 |
| | | | $\bullet^3$ Process: change € to £ | | $\bullet^3$ 156 ÷ 1·28 = £121·88 |
| | | | $\bullet^4$ Strategy: Select Zurich accommodation | | $\bullet^4$ CHF51 × 10 = CHF510 |
| | | | $\bullet^5$ Process: change CHF to £ | | $\bullet^5$ 510 ÷ 1·53 = £333·33 |
| | | | $\bullet^6$ Process: calculate total | | $\bullet^6$ total cost of accommodation = 18 + 121·88 + 333·33 = £473·21 |
| 6 | b | | Ans: £413 | 2 | |
| | | | $\bullet^1$ Strategy: chooses cheapest train journeys | | $\bullet^1$ 60·50 + 39·00 + 56·00 + 188·50 + 69·00 |
| | | | $\bullet^2$ Process: calculates total | | $\bullet^2$ £413 |
| 6 | c | | Ans: No, he needs £52·21 more | 5 | |
| | | | $\bullet^1$ Strategy: know to add daily expenses | | $\bullet^1$ (30 × 2) + (38 × 12) + (45 × 10) |
| | | | $\bullet^2$ Process: calculate total daily expenses | | $\bullet^2$ £966 |
| | | | $\bullet^3$ Strategy: know to add all costs | | $\bullet^3$ 966 + 473·21 + 413·00 |
| | | | $\bullet^4$ Process: calculate total of all costs | | $\bullet^4$ £1852·21 |
| | | | $\bullet^5$ Communication: state conclusion with reason | | $\bullet^5$ No, he needs £52·21 more |

TOTAL MARKS FOR PAPER 2-55

[END OF SPECIMEN MARKING INSTRUCTIONS]