



National  
Qualifications  
2014

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# 2014 Lifeskills Maths Paper 1

## National 5

### Finalised Marking Instructions

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## 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 detailed marking instructions, which identify the key features required in candidate responses.*

- (a) Marks for each candidate response must always be assigned in line with these General Marking Principles and the Detailed Marking Instructions for this assessment.
- (b) Marking should always be positive. This means that, for each candidate response, marks are accumulated for the demonstration of relevant skills, knowledge and understanding: they are not deducted from a maximum on the basis of 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

Detailed Marking Instructions for each question

Question		Expected Answer(s) Give one mark for each •	Max Mark	Illustrations of evidence for awarding a mark at each •
1.		<p>Ans: <math>\frac{1}{10}</math></p> <ul style="list-style-type: none"> <li>•<sup>1</sup> Strategy: know how to calculate probability</li> <li>•<sup>2</sup> Process: correctly simplify</li> </ul>	2	<ul style="list-style-type: none"> <li>•<sup>1</sup> <math>\frac{3}{30}</math></li> <li>•<sup>2</sup> <math>\frac{1}{10}</math></li> </ul>
<p><b>Notes:</b></p> <p>1. Accept 1:10, 1 in 10, 10% ...</p> <p>2. Special cases if <math>\frac{3}{17}</math> Award 1 mark if <math>\frac{3}{7}</math> Award 1 mark</p> <p>3. If tree diagram used evidence of • <math>\frac{17}{30}</math> • <math>\times \frac{3}{17} = \frac{1}{10}</math></p>				
2.		<p>Ans: no with reason</p> <ul style="list-style-type: none"> <li>•<sup>1</sup> Strategy: find temperature from scale</li> <li>•<sup>2</sup> Strategy: determine upper limit of tolerance</li> <li>•<sup>3</sup> Communication: state conclusion</li> </ul>	3	<ul style="list-style-type: none"> <li>•<sup>1</sup> 37.7°C</li> <li>•<sup>2</sup> (36.4°C to) 37.2°C</li> <li>•<sup>3</sup> Frances is not in good health as her temperature (37.7°C) is above the upper tolerance (37.2°C) of good health.</li> </ul>
<p><b>Notes:</b></p> <p>3<sup>rd</sup> mark available for other suitable statement. Eg “not within range 36.4-37.2”</p>				
3.	(a)	<p>Ans: 5 (m)</p> <ul style="list-style-type: none"> <li>•<sup>1</sup> Strategy: Use Pythagoras to find AB.</li> </ul>	1	<ul style="list-style-type: none"> <li>•<sup>1</sup> <math>AB = \sqrt{3^2 + 4^2} = 5</math></li> </ul>
<p><b>Notes:</b></p>				

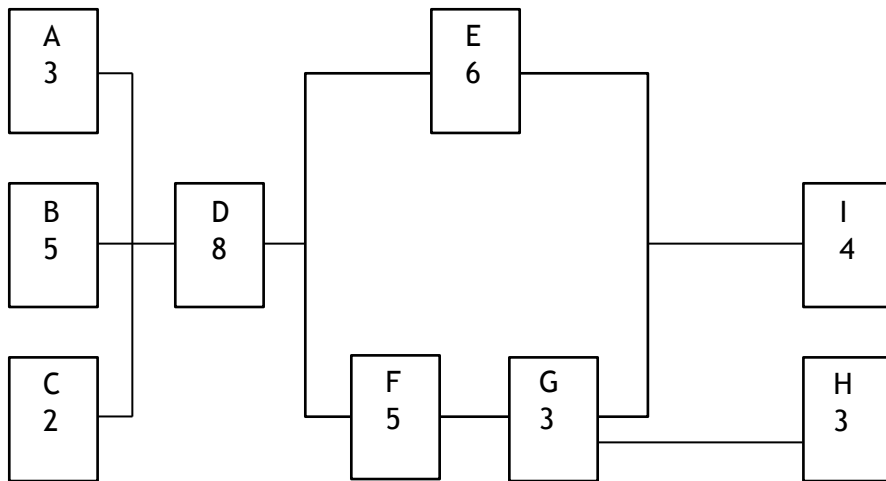
Question		Expected Answer(s) Give one mark for each •	Max Mark	Illustrations of evidence for awarding a mark at each •
	(b)	<b>Ans: 21 m<sup>2</sup></b> <ul style="list-style-type: none"> <li>•<sup>1</sup> Strategy: know to find areas of two triangles and add</li> <li>•<sup>2</sup> Process/Communication: calculate areas and add, stating units</li> </ul>	2	<ul style="list-style-type: none"> <li>•<sup>1</sup> Evidence</li> <li>•<sup>2</sup> <math>6 + 15 = 21</math></li> </ul>
<b>Notes:</b> 1. If 6m <sup>2</sup> and 15m <sup>2</sup> are clearly shown, but not added, award 1/2				
4.	(a)	<b>Ans: £259</b> <ul style="list-style-type: none"> <li>•<sup>1</sup> Process: calculate take home pay in £</li> </ul>	1	<ul style="list-style-type: none"> <li>•<sup>1</sup> <math>296 - (28 \cdot 43 + 8 \cdot 57) = 259</math></li> </ul>
<b>Notes:</b>				
	(b)	<b>Ans: yes with reason</b> <ul style="list-style-type: none"> <li>•<sup>1</sup> Strategy/Process: calculate holiday fund</li> <li>•<sup>2</sup> Process: find total cost of holiday and total holiday fund <math>13 \times 44</math></li> <li>•<sup>3</sup> Communication: state conclusion with reason</li> </ul>	3	<ul style="list-style-type: none"> <li>•<sup>1</sup> <math>259 - (76 + 41 + 45 + 30 + 23) = 44</math></li> <li>•<sup>2</sup> 520 and 572</li> <li>•<sup>3</sup> Yes he can afford the holiday as he can save £52 more than he needs.</li> </ul>
<b>Notes:</b> 1. Working must be shown to justify the answer 2. 1 <sup>st</sup> mark is for holiday fund which is balance of income v total outgoings - and is available for follow through from (a) - and could be a deficit 3. If holiday fund is <0 (or "deficit" mentioned) mark 2 is unavailable as subsequent working has been eased 4. Mark 3 is available (after deficit) if justified. 5. Alternative: $13 \times 259 - 13 \times 215$				

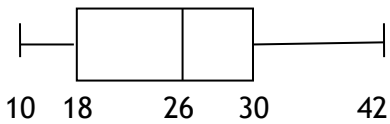
Question		Expected Answer(s) Give one mark for each •	Max Mark	Illustrations of evidence for awarding a mark at each •
5.		<p><b>Ans: 8200 metres (8.2 km)</b></p> <ul style="list-style-type: none"> <li>•<sup>1</sup> Strategy: Evidence of suitable conversion of units</li> <li>•<sup>2</sup> Strategy: Know how to find distance</li> <li>•<sup>3</sup> Process: calculate distance correctly</li> <li>•<sup>4</sup> Communication: round answer correctly, using appropriate units</li> </ul>	4	<ul style="list-style-type: none"> <li>•<sup>1</sup> 20 min x 60 (change to secs) 6.8 m/s x 60 (m per min)</li> <li>•<sup>2</sup> <math>D = S \times t = 6.8 \times 20 \times 60</math></li> <li>•<sup>3</sup> <math>D = 8160</math> metres</li> <li>•<sup>4</sup> <math>D = 8200</math> metres or 8.2 kilometres</li> </ul>

**Notes:**

6.	(a)	<p><b>Ans: task letters and times inserted in chart</b></p> <ul style="list-style-type: none"> <li>•<sup>1</sup> Strategy: start to allocate tasks</li> <li>•<sup>2</sup> Strategy: complete allocation of tasks</li> </ul>	2	<ul style="list-style-type: none"> <li>•<sup>1</sup> Any 5 boxes correct</li> <li>•<sup>2</sup> Remaining 3 boxes correct</li> </ul>
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**Notes:**



Question		Expected Answer(s) Give one mark for each •	Max Mark	Illustrations of evidence for awarding a mark at each •
	(b)	<b>Ans: no with reason</b> <ul style="list-style-type: none"> <li>•<sup>1</sup> Strategy: select critical path</li> <li>•<sup>2</sup> Communication: state conclusion with reason</li> </ul>	2	<ul style="list-style-type: none"> <li>•<sup>1</sup> 5+8+(5+3)+4</li> <li>•<sup>2</sup> no, because it will take 25 hours</li> </ul>
<b>Notes:</b> 1. H/I interchanged is acceptable 2. (b) marks can be awarded for incorrect critical path with valid comparison to 22 hours Eg if $\frac{C}{2} \frac{D}{8} \frac{E}{6} \frac{I}{4} = 20$ hours YES as 20 < 22 would gain mark				
7.	(a)	<b>Ans: boys with valid reason</b>	1	
<b>Notes:</b>				
	(b)	<b>Ans: 26, 18, 30</b> <ul style="list-style-type: none"> <li>•<sup>1</sup> Process: state the median</li> <li>•<sup>2</sup> Process: state the quartiles</li> </ul>	2	<ul style="list-style-type: none"> <li>•<sup>1</sup> 26</li> <li>•<sup>2</sup> 18, 30</li> </ul>
<b>Notes:</b>				
	(c)	<b>Ans:</b>  <ul style="list-style-type: none"> <li>•<sup>1</sup> Strategy: correct end points</li> <li>•<sup>2</sup> Strategy: correct box</li> </ul>	2	<ul style="list-style-type: none"> <li>•<sup>1</sup> end points at 10 and 42</li> <li>•<sup>2</sup> box showing Q<sub>1</sub>, Q<sub>2</sub>, Q<sub>3</sub></li> </ul>
<b>Notes:</b> 1. Incorrect answers in part (b) must be followed through to give the possibility of awarding 2/2				

Question		Expected Answer(s) Give one mark for each •	Max Mark	Illustrations of evidence for awarding a mark at each •
8.	(a)	<b>Ans: NOK 6000</b> <ul style="list-style-type: none"> <li>•<sup>1</sup> Process: converts from £ to NOK</li> </ul>	1	<ul style="list-style-type: none"> <li>•<sup>1</sup> <math>750 \times 8 = 6000</math></li> </ul>
<b>Notes:</b>				
	(b)	<b>Ans: £87·50</b> <ul style="list-style-type: none"> <li>•<sup>1</sup> Process: calculates remaining NOK</li> <li>•<sup>2</sup> Strategy: knows how to convert to euros</li> <li>•<sup>3</sup> Process: converts correctly</li> <li>•<sup>4</sup> Process: calculates remaining euros</li> <li>•<sup>5</sup> Process: converts to sterling correctly</li> </ul>	5	<ul style="list-style-type: none"> <li>•<sup>1</sup> <math>6000 - 5 \times 520 = 3400</math></li> <li>•<sup>2</sup> Knows to <math>\div</math> by 8 and then <math>\times</math> by 1·2</li> <li>•<sup>3</sup> €510</li> <li>•<sup>4</sup> <math>\text{€}510 - 3 \times \text{€}135 = \text{€}105</math></li> <li>•<sup>5</sup> <math>105 \div 1\cdot20 = \text{£}87\cdot50</math></li> </ul>
<b>Notes:</b>				
9.		<b>Ans: Proof</b> <ul style="list-style-type: none"> <li>•<sup>1</sup> Strategy: know to add volumes of cone and cylinder</li> <li>•<sup>2</sup> Strategy: correct substitution into cylinder formula</li> <li>•<sup>3</sup> Strategy: correct substitution into cone formula</li> <li>•<sup>4</sup> Process: simplify expressions and add to obtain <math>408\pi</math></li> </ul>	4	<ul style="list-style-type: none"> <li>•<sup>1</sup> evidence</li> <li>•<sup>2</sup> <math>\pi \times 6^2 \times 10</math></li> <li>•<sup>3</sup> <math>\frac{1}{3} \pi \times 6^2 \times 4</math></li> <li>•<sup>4</sup> <math>360\pi + 48\pi = 408\pi</math></li> </ul>
<b>Notes:</b>				

[END OF MARKING INSTRUCTIONS]