

MATHEMATICS LITERACY  
PAPER 1 STATISTICS

LO 1 – Numbers and Operations in Context  
LO 2 – Functional Relationship

**PART A: CONTENT COVERED PER QUESTION**

<b>Question</b>	<b>Content</b>	
<b>Question 1:</b> Banking with Bongani	<b>Main focus:</b> Decimals Percentages	<b>Other content tested:</b> <ul style="list-style-type: none"> <li>• Equations</li> <li>• Simple interest</li> <li>• Reading information from a table</li> </ul>
<b>Question 2:</b> Shopping with Penny	<b>Main focus:</b> Percentage change Compound interest	<b>Other content tested:</b> <ul style="list-style-type: none"> <li>• Decimals</li> <li>• Reading information from a graph</li> <li>• Reading information from a table</li> </ul>
<b>Question 3:</b> Mandla's Money	<b>Main focus:</b> Income Expenditure Profit/loss	<b>Other content tested:</b> <ul style="list-style-type: none"> <li>• Reading information from a table</li> </ul>
<b>Question 4:</b> Bob the Businessman's Cellphone Dilemma	<b>Main focus:</b> Drawing linear graphs Analysing linear graphs Making decisions	<b>Other content tested:</b> <ul style="list-style-type: none"> <li>• Decimals</li> <li>• Equations</li> <li>• Reading information from a table</li> </ul>
<b>Question 5:</b> Waseema's Water Costs	<b>Main focus:</b> Analysing graphs Making decisions	<b>Other content tested:</b> <ul style="list-style-type: none"> <li>• Decimals</li> <li>• Equations</li> <li>• Reading information from a table</li> </ul>

**PART B: BREAKDOWN OF MARKS, THINKING LEVELS AND LEARNING OUTCOMES**

**Mark Distribution:** Total marks = 75

	Marks	% of Paper
<b>Question 1</b>	<b>20</b>	<b>26,7%</b>
<b>Question 2</b>	<b>13</b>	<b>17,3%</b>
<b>Question 3</b>	<b>5</b>	<b>6,7%</b>
<b>Question 4</b>	<b>19</b>	<b>25,3%</b>
<b>Question 5</b>	<b>18</b>	<b>24%</b>
Total	75	

**Thinking levels:**

	Thinking level			
	1	2	3	4
Question 1	7	2	5	6
Question 2	2	3	8	0
Question 3	0	0	3	2
Question 4	5	6	4	4
Question 5	1	7	6	4
Total	15 (18,75)	18 (18,75)	26 (22,5)	16 (15)
<b>% of paper</b>	20% (25%)	24% (25%)	34,7% (30%)	21,3% (20%)

\*\*\* The values given in brackets are the official weightings for each of the thinking levels as listed in the *IEB Mathematical Literacy Subject Assessment Guidelines*.

**Learning Outcomes**

LO 1 – Numbers and Operations in Context

LO 2 – Functional Relationships

	LO 1	Details	LO 2	Details
<b>Question 1 – Banking</b>	±18	<ul style="list-style-type: none"> <li>• Calculations with decimals &amp; %</li> <li>• Interest</li> <li>• Simple formula</li> <li>• Making deductions</li> </ul>	±8	<ul style="list-style-type: none"> <li>• Reading information from a table</li> <li>• Solving equations and substitution</li> </ul>
<b>Question 2 – Shopping</b>	13	<ul style="list-style-type: none"> <li>• Rate – % change</li> <li>• Percentages</li> <li>• Compound interest</li> </ul>	±2	<ul style="list-style-type: none"> <li>• Reading information from a graph</li> <li>• Reading information from a table</li> </ul>
<b>Question 3 – Budget</b>	5	<ul style="list-style-type: none"> <li>• Income, expenditure, profit</li> <li>• Making deductions</li> </ul>	0	
<b>Question 4 – Cell phones</b>	8	<ul style="list-style-type: none"> <li>• Cost calculations</li> <li>• Simple formula</li> <li>• Making deductions</li> </ul>	14	<ul style="list-style-type: none"> <li>• Reading information from a table</li> <li>• Constructing equations</li> <li>• Solving equations and substitution</li> <li>• Drawing graphs</li> <li>• Analysing graphs</li> </ul>
<b>Question 5 – Water Costs</b>	13	<ul style="list-style-type: none"> <li>• Calculations with decimals</li> <li>• Making deductions</li> </ul>	13	<ul style="list-style-type: none"> <li>• Substitution and solving equations</li> <li>• Reading information from a table</li> <li>• Analysing graphs</li> </ul>
<b>Total</b>	57		<b>37</b>	
<b>% of paper</b>	≈ 76% (50%)		≈ 49,3% (50%)	

\*\*\* The total percentage of marks allocated to LO 1 & 2, LO 3 and LO 4 does not add up to 100% because there is an overlap of certain skills and content that appears in the assessment standards of LO’s 1 & 2 and LO 3 and LO 4.

For example, working with formula/equations for area and volume appears in the assessment standard for LO 1, LO 2 and LO 3.

\*\*\* The values given in brackets are the official weightings for each of the learning outcomes as listed in the *IEB Mathematical Literacy Subject Assessment Guidelines*.

**PART C: SUMMARY OF LEARNING OUTCOMES, ASSESSMENT STANDARDS, CONTENT & SKILLS**

**QUESTION 1: PARLINGTON ESTATE**

Learning Outcome	Assessment Standard	Content/Skills
<p><b>LO 1 – Numbers &amp; Operations in Context</b></p>	<p>10.1.1 Solve problems in various contexts, including financial contexts, by estimating and calculating accurately using mental, written and calculator methods where appropriate, inclusive of:</p> <ul style="list-style-type: none"> <li>• working with simple formulae</li> <li>• using the relationships between arithmetical operations</li> </ul>	<ul style="list-style-type: none"> <li>• Performing cost calculations with decimals and percentages – <i>all questions</i>.</li> <li>• Working with formula – (c).</li> <li>• Making comparisons and deductions – (c), (e).</li> <li>• Interest – (d).</li> </ul>
	<p>10.1.2 Relate calculated answers correctly and appropriately to the problem situation by:</p> <ul style="list-style-type: none"> <li>• interpreting calculated answers logically in relation to the problem and communicating processes and results</li> </ul>	
	<p>10.1.3 Apply mathematical knowledge and skills to plan personal finances, inclusive of:</p> <ul style="list-style-type: none"> <li>• income and expenditure</li> <li>• the impact of interest (simple and compound)</li> </ul>	
<p><b>LO 2 – Functional Relationships</b></p>	<p>10.2.1 Work with numerical data and formulae in a variety of real-life situations:</p> <ul style="list-style-type: none"> <li>• determining output values for given input values</li> <li>• determining input values for given output values</li> </ul>	<ul style="list-style-type: none"> <li>• Substituting into and solving equations – (c).</li> <li>• Reading information from tables – <i>all questions</i>.</li> </ul>
	<p>10.2.3 Critically interpret tables and graphs that relate to a variety of real-life situations by:</p> <ul style="list-style-type: none"> <li>• finding values of variables at certain points</li> <li>• describing overall trends</li> <li>• identifying maximum and minimum points</li> <li>• describing trends</li> </ul>	

**QUESTION 2: SHOPPING WITH PENNY**

Learning Outcome	Assessment Standard	Content/Skills
<p><b>LO 1 – Numbers &amp; Operations in Context</b></p>	<p>10.1.1 Solve problems in various contexts, including financial contexts, by estimating and calculating accurately using mental, written and calculator methods where appropriate, inclusive of:</p> <ul style="list-style-type: none"> <li>• working with simple formulae</li> <li>• using the relationships between arithmetical operations (including the distributive property) to simplify calculations where possible</li> </ul>	<ul style="list-style-type: none"> <li>• Performing cost calculations with decimals and percentages – <i>all questions</i>.</li> <li>• Ratios – calculating % change – a).</li> <li>• Compound Interest – c).</li> </ul>
	<p>10.1.3 Apply mathematical knowledge and skills to plan personal finances, inclusive of:</p> <ul style="list-style-type: none"> <li>• income and expenditure</li> <li>• the impact of interest (simple and compound)</li> </ul>	

**QUESTION 3: MANDLA'S MONEY**

Learning Outcome	Assessment Standard	Content/Skills
<p><b>LO 1 – Numbers &amp; Operations in Context</b></p>	<p>10.1.1 Solve problems in various contexts, including financial contexts, by estimating and calculating accurately using mental, written and calculator methods where appropriate, inclusive of:</p> <ul style="list-style-type: none"> <li>• using the relationships between arithmetical operations (including the distributive property) to simplify calculations where possible</li> </ul>	<ul style="list-style-type: none"> <li>• Performing calculations involving decimals – (a).</li> <li>• Making decisions and deductions – (b).</li> <li>• Calculating income, expenditure and profit – (a).</li> </ul>
	<p>10.1.2 Relate calculated answers correctly and appropriately to the problem situation by:</p> <ul style="list-style-type: none"> <li>• interpreting calculated answers logically in relation to the problem and communicating processes and results</li> </ul>	
	<p>10.1.3 Apply mathematical knowledge and skills to plan personal finances, inclusive of:</p> <ul style="list-style-type: none"> <li>• income and expenditure</li> <li>• the impact of interest (simple and compound)</li> </ul>	

**QUESTION 4: BOB THE BUSINESSMAN'S CELL PHONE DILEMMA**

Learning Outcome	Assessment Standard	Content/Skills
<p><b>LO 1 – Numbers &amp; Operations in Context</b></p>	<p>10.1.1 Solve problems in various contexts, including financial contexts, by estimating and calculating accurately using mental, written and calculator methods where appropriate, inclusive of:</p> <ul style="list-style-type: none"> <li>• working with simple formulae</li> <li>• using the relationships between arithmetical operations (including the distributive property) to simplify calculations where possible</li> </ul> <p>10.1.2 Relate calculated answers correctly and appropriately to the problem situation by:</p> <ul style="list-style-type: none"> <li>• interpreting answers in terms of the context;</li> <li>• reworking a problem if the first answer is not sensible, or if the initial conditions change</li> <li>• interpreting calculated answers logically in relation to the problem and communicating processes and results</li> </ul>	<ul style="list-style-type: none"> <li>• Performing cost calculations with decimals – <i>all questions</i>.</li> <li>• Working with formula – (b), (c).</li> <li>• Making comparisons and deductions – (f), (g).</li> </ul>
<p><b>LO 2 – Functional Relationships</b></p>	<p>10.2.1 Work with numerical data and formulae in a variety of real-life situations:</p> <ul style="list-style-type: none"> <li>• determining output values for given input values</li> <li>• determining input values for given output values</li> </ul> <p>10.2.2 Draw graphs (by hand and/or by means of technology where available) in a variety of real-life situations by:</p> <ul style="list-style-type: none"> <li>• point-by-point plotting of data</li> <li>• working with formulae to establish points to plot</li> </ul> <p>10.2.3 Critically interpret tables and graphs that relate to a variety of real-life situations by:</p> <ul style="list-style-type: none"> <li>• finding values of variables at certain points</li> <li>• describing overall trends</li> <li>• identifying maximum and minimum points</li> <li>• describing trends</li> </ul>	<ul style="list-style-type: none"> <li>• Constructing equations – (b).</li> <li>• Substituting into and solving equations – (c).</li> <li>• Drawing graphs by plotting points – (d).</li> <li>• Reading information from tables – (a), (d).</li> <li>• Reading information from graphs – (e), (f).</li> </ul>

**QUESTION 5: WASEEMA’S WATER COSTS**

Learning Outcome	Assessment Standard	Content/Skills
<p><b>LO 1 – Numbers &amp; Operations in Context</b></p>	<p>10.1.1 Solve problems in various contexts, including financial contexts, by estimating and calculating accurately using mental, written and calculator methods where appropriate, inclusive of:</p> <ul style="list-style-type: none"> <li>• working with simple formulae</li> <li>• using the relationships between arithmetical operations (including the distributive property) to simplify calculations where possible</li> </ul> <p>10.1.2 Relate calculated answers correctly and appropriately to the problem situation by:</p> <ul style="list-style-type: none"> <li>• interpreting answers in terms of the context</li> <li>• reworking a problem if the first answer is not sensible, or if the initial conditions change</li> <li>• interpreting calculated answers logically in relation to the problem and communicating processes and results</li> </ul>	<ul style="list-style-type: none"> <li>• Performing cost calculations with decimals –<i>all questions</i>.</li> <li>• Working with formula – (b), (c).</li> <li>• Making comparisons and deductions – (c), (d), (e).</li> </ul>
<p><b>LO 2 – Functional Relationships</b></p>	<p>10.2.1 Work with numerical data and formulae in a variety of real-life situations:</p> <ul style="list-style-type: none"> <li>• determining output values for given input values</li> <li>• determining input values for given output values</li> </ul> <p>10.2.3 Critically interpret tables and graphs that relate to a variety of real-life situations by:</p> <ul style="list-style-type: none"> <li>• finding values of variables at certain points</li> <li>• describing overall trends</li> <li>• identifying maximum and minimum points</li> <li>• describing trends</li> </ul>	<ul style="list-style-type: none"> <li>• Substituting into and solving equations – (b), (c).</li> <li>• Reading information from tables – (a), (b), (c).</li> <li>• Reading information from graphs – (d).</li> </ul>