



NATIONAL SENIOR CERTIFICATE EXAMINATION
MAY 2022

MATHEMATICAL LITERACY: PAPER I

MARKING GUIDELINES

Time: 3 hours

150 marks

These marking guidelines are prepared for use by examiners and sub-examiners, all of whom are required to attend a standardisation meeting to ensure that the guidelines are consistently interpreted and applied in the marking of candidates' scripts.

The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines. It is also recognised that, without the benefit of attendance at a standardisation meeting, there may be different interpretations of the application of the marking guidelines.

Q1	Marking guideline	Marks	Skills assessed	Topic	Level
KEY	a accuracy m method mca method continued accuracy		ca continued accuracy ma method accuracy r rounding	F Finance D Data handling P probability	1 KN 2 RP 3 MSP 4 R&R
1.1.1	R8 499 ✓ ^a ✓ ^a	2	✓✓ R8499	F	1
1.1.2	R306 ✓ ^a ✓ ^a	2	✓✓ R306	F	1
1.1.3	$42 \div 12 = 3,5$ years ✓ ^{ma} ✓ ^a	2	✓ dividing by 12 ✓ 3 years	F	1
1.1.4	$R306 \times 42$ ✓ ^{ma} + R850 = R13 702 ✓ ^a	2	✓ multiplying by 42 ✓ R13 702	F	1
1.1.5	Simple interest ✓ ^a ✓ ^a	2	✓✓ 17,5%	F	1
1.2.1	Transaction fees: Fees charged by Discovery Bank ✓ for Michael to complete these transactions ✓	2	✓ charged by bank. ✓ to do these transactions	F	1
1.2.2	Currency conversion fee = \$650 × 2,75% ✓ ^{ma} = \$17,88 ✓ ^a	2	✓ Multiplying by 2,75% ✓ \$17,88	F	1
1.2.3	Withdrawal fee = R4,50 ✓ ^{ma} + 1,5% × R8 500 ✓ ^{ma} = R132 ✓ ^a	3	✓ correct formula ✓ substitution into formula ✓ R132	F	1
1.3.1	(a) Banks ✓ ^a (b) Withdrawal fee in rands ✓ ^a	2	✓ Banks ✓ Fee costs in rands	D	1
1.3.2	R11,00 ✓ ^a ✓ ^a	2	R11,00 ✓✓	D	1
1.3.3	Discovery Bank ✓ ^a Highest R12 ✓ ^a	2	R12 ✓ ^a Discovery Bank ✓	D	1
1.3.4	Standard Bank ✓ ^a Lowest R7,50 ✓ ^a	2	R7,50 ✓ ^a Standard Bank ✓	D	1
1.3.5	Median = R10 ✓ ^a ✓ ^a	2	✓✓ R10	D	1
1.3.6	Modal = R10 ✓ ^a ✓ ^a	2	✓✓ R10	D	1
1.4.1	(a) P(Rain Thursday) = 6% ✓ ^a ✓ ^a (b) Highly unlikely ✓ ^a ✓ ^a	2 2	✓✓ 6% ✓✓ Highly unlikely	P	1
1.4.2	Monday ✓ ^a 31 May ✓ ^a	2	✓ Monday 31 May ✓ ^a	P	1
				MARKS	[35]

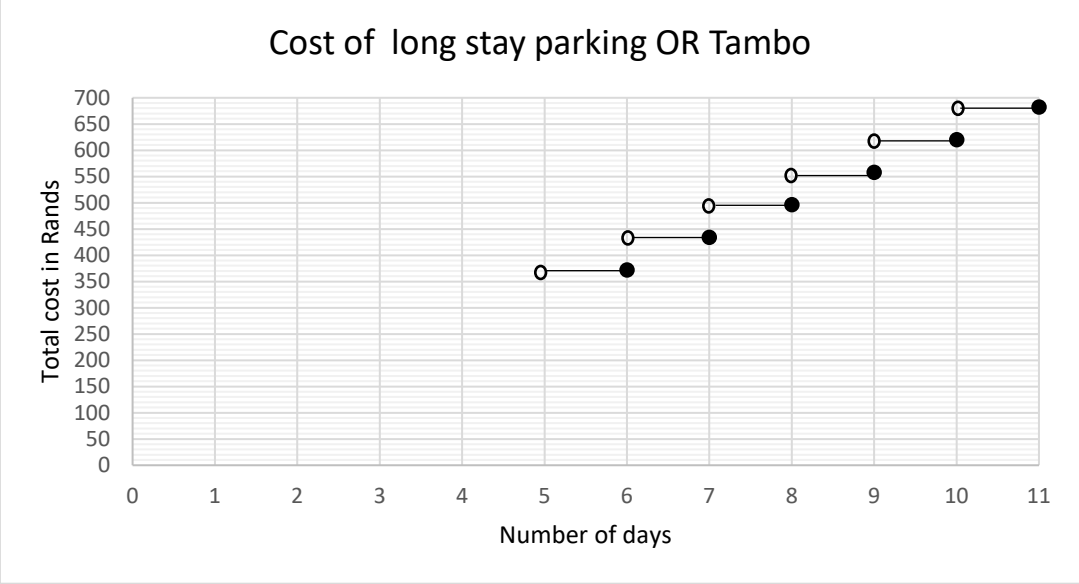
Q2	Marking guideline	Marks	Skills assessed	Topic	Level																																												
KEY	a accuracy m method mca method continued accuracy		ca continued accuracy ma method accuracy r rounding	F Finance D Data handling P probability	1 KN 2 RP 3 MSP 4 R&R																																												
2.1.1	\$5,34 billion ✓ ^a Five billion three hundred and forty million dollars ✓ ^a	2	✓ correct value ✓ written out in words	F	2																																												
2.1.2	R220 000 000 000 ✓ ^a ✓ ^a	2	✓ Unit ✓ R220 000 000 000	F	2																																												
2.1.3	<table border="1"> <thead> <tr> <th>Name</th> <th>Age</th> <th>Country</th> <th>Net Worth</th> </tr> </thead> <tbody> <tr> <td>Aliko Dangote</td> <td>63</td> <td>Nigeria</td> <td>\$13,5 billion</td> </tr> <tr> <td>Mike Adenuga</td> <td>67</td> <td>Nigeria</td> <td>\$7,7 billion</td> </tr> <tr> <td>Issad Rebrab</td> <td>76</td> <td>Algeria</td> <td>\$7,5 billion</td> </tr> <tr> <td>Johann Rupert</td> <td>70</td> <td>South Africa</td> <td>\$6,64 billion</td> </tr> <tr> <td>Nicky Oppenheimer</td> <td>75</td> <td>South Africa</td> <td>\$6,53 billion</td> </tr> <tr> <td>Nassef Sawiris</td> <td>59</td> <td>Egypt</td> <td>\$5,6 billion</td> </tr> <tr> <td>Naguib Sawiris</td> <td>66</td> <td>Egypt</td> <td>\$5,34 billion</td> </tr> <tr> <td>Aziz Akhannouch</td> <td>59</td> <td>Morocco</td> <td>\$3,5 billion</td> </tr> <tr> <td>Mohamed Mansour</td> <td>72</td> <td>Egypt</td> <td>\$3,3 billion</td> </tr> <tr> <td>Abdulsamad Rabiou</td> <td>60</td> <td>Nigeria</td> <td>\$3,1 billion</td> </tr> </tbody> </table> ✓ ^a ✓ ^a	Name	Age	Country	Net Worth	Aliko Dangote	63	Nigeria	\$13,5 billion	Mike Adenuga	67	Nigeria	\$7,7 billion	Issad Rebrab	76	Algeria	\$7,5 billion	Johann Rupert	70	South Africa	\$6,64 billion	Nicky Oppenheimer	75	South Africa	\$6,53 billion	Nassef Sawiris	59	Egypt	\$5,6 billion	Naguib Sawiris	66	Egypt	\$5,34 billion	Aziz Akhannouch	59	Morocco	\$3,5 billion	Mohamed Mansour	72	Egypt	\$3,3 billion	Abdulsamad Rabiou	60	Nigeria	\$3,1 billion	2	✓ Top and bottom value correct ✓ All other values correct	F	2
Name	Age	Country	Net Worth																																														
Aliko Dangote	63	Nigeria	\$13,5 billion																																														
Mike Adenuga	67	Nigeria	\$7,7 billion																																														
Issad Rebrab	76	Algeria	\$7,5 billion																																														
Johann Rupert	70	South Africa	\$6,64 billion																																														
Nicky Oppenheimer	75	South Africa	\$6,53 billion																																														
Nassef Sawiris	59	Egypt	\$5,6 billion																																														
Naguib Sawiris	66	Egypt	\$5,34 billion																																														
Aziz Akhannouch	59	Morocco	\$3,5 billion																																														
Mohamed Mansour	72	Egypt	\$3,3 billion																																														
Abdulsamad Rabiou	60	Nigeria	\$3,1 billion																																														
2.1.4	$\frac{R220000000000}{R220000000000} : \frac{\$13500000000}{R220000000000} \checkmark^{ma}$ $R1 : \$0,0614 \checkmark^{ca}\checkmark^a$	4	✓ \$13 500 000 000 ✓ dividing by R220 000 000 000 ✓ \$0,0614 ✓ R1: \$0,0614 correct unit form	F	3																																												
2.1.5	$\text{Aliko Dangote \%} = \frac{13,5}{62,71} \checkmark^a \times 100 \checkmark^{ma} = 21,53\% \checkmark^{ca}$	3	✓ sum of values ✓ calculating a percentage ✓ 21,53%	F	2																																												
2.1.6	Age range = 76 – 59 ✓ ^{ma} = 17 ✓ ^a	2	✓ subtracting correct values ✓ 17	F	1																																												

2.1.7	$\text{Probability} = \frac{3 \checkmark^a}{10 \checkmark^{ma}} = 0,3 \checkmark^{ca}$	3	<ul style="list-style-type: none"> ✓ 3 ✓ dividing by 10 ✓ 0,3 	F	2
2.2.1	<p>Bugatti Veyron: $\\$2\,200\,000 \div 0,0024 \checkmark^{ma}$ $= \text{R}916\,666\,666,70 \checkmark^a$</p> <p>Number of days = $\frac{\text{R}916\,666\,666,70}{\text{R}14\,500\,000 \checkmark^{mca}}$</p> <p>Number of days = $63,21 \checkmark^{ca} = 64 \text{ whole days } \checkmark^{ca}$</p> <p>OR</p> <p>Number of days = $14,5 \times 0,0024 = \\$0,0348 \text{ million/day}$ $2,2 \div 0,0348 = 63,21 \approx 64 \text{ days}$</p>	5	<ul style="list-style-type: none"> ✓ dividing \$2 200 000 by 0,0024 ✓ R 916 666 666,70 ✓ dividing answer by R 14 500 000 ✓ 63,21 ✓ rounding up to whole days 	F	3
2.2.2	<p>(a) Percentage increase = $\frac{209 - 136,22 \checkmark^a}{136,22 \checkmark^a} \times 100$</p> <p>Percentage increase = $0,5234282 \times 100\% \checkmark^{ma}$</p> <p>Percentage increase = $53,43\% \checkmark^{ma}$</p>	4	<ul style="list-style-type: none"> ✓ substitution numerator correctly ✓ correct denominator ✓ multiplying 100 ✓ 53,43% 	D	2
2.2.2	<p>(b) December 2020 \checkmark^a</p> <p>The steepness/gradient of the graph. \checkmark^a</p>	2	<ul style="list-style-type: none"> ✓ December 2020 ✓ The steepness/gradient graph 	D	4
				MARKS	[29]

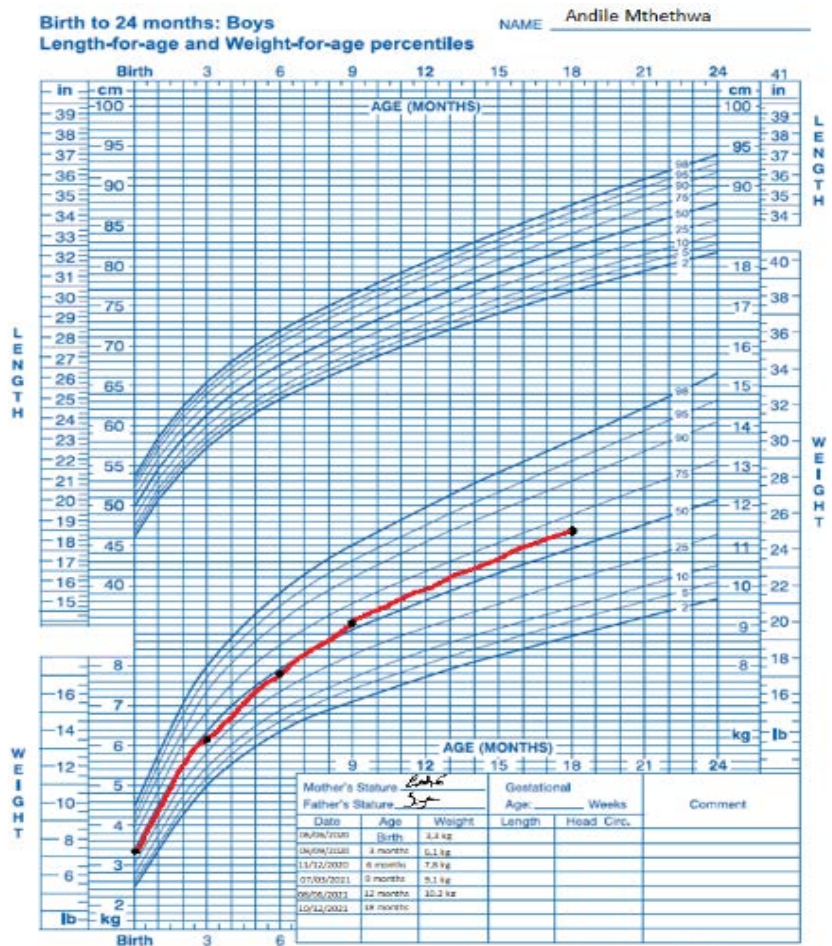
Q3	Marking guideline	Marks	Skills assessed	Topic	Level
KEY	a accuracy m method mca method continued accuracy		ca continued accuracy ma method accuracy r rounding	F Finance D Data handling P probability	1 KN 2 RP 3 MSP 4 R&R
3.1.1	$2020 \text{ GDP} = \frac{\$13 \text{ billion}}{4,3} \times 100 = R302,33 \text{ billion}$	3	✓ divide \$13 billion by 4,3 ✓ multiple by 100 ✓ R302,33 billion (most have billion)	F	3
3.1.2	This data is discrete as they are countable. OR This data is discrete as they are whole numbers.	2	✓ discrete ✓ currency is countable	D	4
3.1.3	$\text{mean} = \frac{3\,213,7}{10}$ mean = \$321,37 billion	5	✓ Adding values ✓ 3213,7 ✓ dividing by 10 ✓ \$321,37 ✓ billion	D	2
3.1.4	The SA GDP decreased from 2011 to 2016. Increased from 2016 to 2018. Started decreasing from 2018 to 2020.	3	✓ decreased from 2011 to 2016 ✓ Increased from 2016 to 2018 ✓ decreasing from 2018 to 2020	D	4

3.2.1	Pie chart ✓ ^a ✓ ^a			2	✓✓ Pie chart	D	1												
3.2.2	Sauvignon Blanc = 100 ✓ – 8 – 8 – 6 – 5 – 44 – 11 – 9 ✓ ^{ma} = 9% ✓ ^a			3	subtract ✓ values from 100% ✓ ✓ 9%	D	2												
3.2.3	"other" sector size = $\frac{44}{100}$ ✓ ^{ma} × 360 ✓ ^{ma} = 158,4 ✓ ^a			3	✓ dividing by 100 ✓ multiplying by 360 ✓ 158,4°	D	2												
3.3.1	Discovery Bank has the best interest. ✓ ^a ✓ ^a of 8,35% p.a.			2	✓✓ best interest rate.	F	4												
3.3.2	<table border="1"> <thead> <tr> <th>Year</th> <th>Opening Balance</th> <th>Interest</th> <th>Closing Balance</th> </tr> </thead> <tbody> <tr> <td>2021</td> <td>R550 000</td> <td>R550 000 × 8,35% = R45 925 ✓^a</td> <td>R595 925 ✓^a</td> </tr> <tr> <td>2022</td> <td>R595 925 ✓^a</td> <td>R595 925 × 8,35% = R49 759,7375 ✓^{ca}</td> <td>R645 684,7375 ✓^{ca}</td> </tr> </tbody> </table>			Year	Opening Balance	Interest	Closing Balance	2021	R550 000	R550 000 × 8,35% = R45 925 ✓ ^a	R595 925 ✓ ^a	2022	R595 925 ✓ ^a	R595 925 × 8,35% = R49 759,7375 ✓ ^{ca}	R645 684,7375 ✓ ^{ca}	5	✓ multiplying R550 000 by 8,35% ✓ Adding interest to open balance ✓ Opening balance carried down ✓ multiplying new balance by 8,35% ✓ Adding interest to open balance	F	3
Year	Opening Balance	Interest	Closing Balance																
2021	R550 000	R550 000 × 8,35% = R45 925 ✓ ^a	R595 925 ✓ ^a																
2022	R595 925 ✓ ^a	R595 925 × 8,35% = R49 759,7375 ✓ ^{ca}	R645 684,7375 ✓ ^{ca}																
3.3.3	Yes, ✓ ^a he will as his money is growing at an interest rate that is almost double the inflation rate. ✓ ^a So, after three years he will have enough money to purchase the new equipment.			2	✓ yes ✓ interest rate is almost double the inflation rate	F	4												
						MARKS	[30]												

Q4	Marking guideline	Marks	Skills assessed	Topic	Level
KEY	a accuracy m method mca method continued accuracy		ca continued accuracy ma method accuracy r rounding	F Finance D Data handling P probability	1 KN 2 RP 3 MSP 4 R&R
4.1.1	Total cost = R6 910 + R600 + R431 + R31 900 + R5 000 $\checkmark^{ma} = R44\ 841 \checkmark^a$	2	\checkmark Adding correct values \checkmark R44 841	F	2
4.1.2	Savings = R44 841 + R5 159 $\checkmark^{ma} = R50\ 000 \checkmark^a$	2	\checkmark Add surplus to Q4.1.1 \checkmark R50 000	F	2
4.1.3	$VAT = \frac{R44\ 841 - R5\ 000 \checkmark^{ma}}{115 \checkmark^{ma}} \times 15 \checkmark^{ma} = R5\ 196,65 \checkmark^a$ <p>OR</p> $VAT = R39\ 841 - \checkmark^{ma} \left(\frac{39\ 841 \checkmark^{ma}}{115\% \checkmark^{ma}} \right) = R5\ 196,65 \checkmark^a$	4	\checkmark Subtract R5 000 \checkmark dividing by 115 \checkmark multiplying by 15 \checkmark R4518,83	F	3
4.2.1	Minimum = 16 \checkmark^a Maximum = 65 \checkmark^a	2	\checkmark correct minimum \checkmark correct maximum	D	2
4.2.2	IQR = 58 – 28 $\checkmark^{ma} = 30 \checkmark^a$	2	\checkmark subtract 28 from 58 \checkmark 30	D	2
4.2.3	$\approx 75\% \checkmark^a \checkmark^a$	2	$\checkmark \checkmark$ 75%	D	2
4.2.4	50% of the group is over 38, \checkmark^a with 25% being over 58. 25% of the group is younger than 28. \checkmark^a	2	\checkmark 50% of the group younger/older than 38 \checkmark 25% of the group younger than 28 OR 25% of the group older than 58	D	4
4.3.1	Total cost = R310 \checkmark^a + R62 x 6 $\checkmark^{ma} = R682 \checkmark^{ca}$	3	\checkmark using correct tariff R310 \checkmark multiplying R62 x 6 \checkmark R682	F	2

<p>4.3.2</p>	<p>(a) Rate per day = $\frac{R390}{3} = R130$ per day ✓^a Rate per day = $\frac{R248}{4} = R62$ per day ✓^a Rate per day = $\frac{R310}{5} = R62$ per day ✓^a ∴ the rate per day for 3 days is much higher, 4 and 5 days are equal ✓^a</p>	<p>4</p> <p>✓ R130 per day ✓ R62 per day ✓ R62 per day ✓ A correct comparison made.</p>	<p>F</p>	<p>4</p>
	<p>(b)</p> 	<p>5</p> <p>✓ heading ✓ step function ✓✓✓ plotting</p>	<p>F</p>	<p>3</p>
			<p>MARKS</p>	<p>[28]</p>

Q5	Marking guideline	Marks	Skills assessed	Topic	Level
KEY	<p>a accuracy</p> <p>m method</p> <p>mca method continued accuracy</p>		<p>ca continued accuracy</p> <p>ma method accuracy</p> <p>r rounding</p>	<p>F Finance</p> <p>D Data handling</p> <p>P probability</p>	<p>1 KN</p> <p>2 RP</p> <p>3 MSP</p> <p>4 R&R</p>
5.1.1	<p>≈ 62,5th percentile ✓_a✓_a</p> <p>Acceptable range 50th–75th percentile</p>	2	✓✓ 50 th –75 th percentile	D	2
5.1.2	(a)	3	<p>✓ curve</p> <p>✓ all points plotted correctly</p> <p>✓ points connected</p>	D	2



5.1.2	(b) Andile is developing well. ✓ ^a He has a healthy weight ✓ ^a and has moved above the 50 th percentile which is pleasing to see. ✓ ^a	3	✓ Developing well ✓ Healthy weight ✓ moved above 50 th percentile	D	4
5.1.3	(a) It means that for is age, his weight is lower than 70% ✓ ^a of all babies his age, or 30% of all babies have a weight that is lower than his. For this baby that lies only on the 30 th percentile, a doctor or nurse would advise the parents that their baby needs to go on a special diet to increase the baby's weight. ✓ ^a	2	✓ weight lower than 70% of babies his age ✓ special diet to increase weight	D	2
5.1.3	(b) It is important to know that babies are growing/developing normally and that they are healthy. ✓ ^a If the baby is not healthy, they must take corrective action. ✓ ^a	2	✓ healthy/normal growth ✓ corrective action	D	4
5.2.1	R1 000 ✓ ^a ✓ ^a	2	✓ ^a ✓ ^a R1 000	F	2
5.2.2	More than 10 guests ✓ ^a but less than 40 guests ✓ ^a ✓ ^{ma} OR from 11 guests to 39 guests	3	✓ don't include 10 and 40 ✓ >10 ✓ <40	F	4
5.2.3	Fixed cost ✓ ^a of R3 000 for the venue no matter the number of guests ✓ ^a	2	✓ Fixed cost ✓ R3 000	F	2
5.2.4	Cost = R500 ✓ ^a + R100 ✓ ^a × n ✓ ^a	3	✓ R500 fixed cost ✓ R150 per guest ✓ number of guests/n	F	3
5.3.1	R8 161 ✓ ^a × 12 ✓ ^{ma} = R97 932 ✓ ^{ca}	3	✓ correct row & correct column ✓ multiplying by 12 ✓ R97 932	F	3
5.3.2	Annual medical aid credit = (R322 + R322 + R224) ✓ ^{ma} × 12 Annual medical aid credit = R878 × 12 ✓ ^{ma} Annual medical aid credit = R10 536 ✓ ^{ca}	3	✓ adding three correct values ✓ multiplying answer by 12 ✓ R10 164	F	3
				MARKS	[28]

Total: 150 marks