



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		Skills assessed	Topic	Level
KEY	<b>a</b> accuracy <b>m</b> method <b>mca</b> method continued accuracy		<b>ca</b> continued accuracy <b>ma</b> method accuracy <b>r</b> rounding	<b>F</b> Finance <b>D</b> Data handling <b>P</b> probability	<b>1</b> KN <b>2</b> RP <b>3</b> MSP <b>4</b> R&R
1.1.1	R8 499		R8499	F	1
1.1.2	R306		R306	F	1
1.1.3	$42 \div 12 = 3,5$ years 3 years or 3 years 6 months		dividing by 12 3 years	F	1
1.1.4	$R306 \times 42 + R850 = R13\ 702$		multiplying by 42 R13 702	F	1
1.1.5	Simple interest <b>OR</b> Simple		17,5%	F	1
1.2.1	Transaction fees: Fees charged by Discovery Bank for Michael to complete these transactions		charged by bank. to do these transactions	F	1
1.2.2	Currency conversion fee = $\$650 \times 2,75\%$ = \$17,88 or 17,88 R17,88 1		Multiplying by 2,75% \$17,88	F	1
1.2.3	Withdrawal fee = $R4,50 + 1,5\% \times R8\ 500$ = R132		correct formula substitution into formula R132	F	1
1.3.1	(a) Banks (b) Withdrawal fee in rands or total cost or total amount		Banks Fee costs in rands	D	1
1.3.2	R11,00 – 1 mark only 11,00 – unit penalty		R11,00	D	1
1.3.3	Discovery Bank Highest R12		R12 Discovery Bank	D	1
1.3.4	Standard Bank Lowest R7,50		R7,50 Standard Bank	D	1
1.3.5	Median = R10		R10	D	1
1.3.6	Modal = R10		R10	D	1
1.4.1	(a) $P(\text{Rain Thursday}) = 6\%$ (b) Highly unlikely		6% Highly unlikely	P	1
1.4.2	Monday 31 May		Monday 31 May	P	1

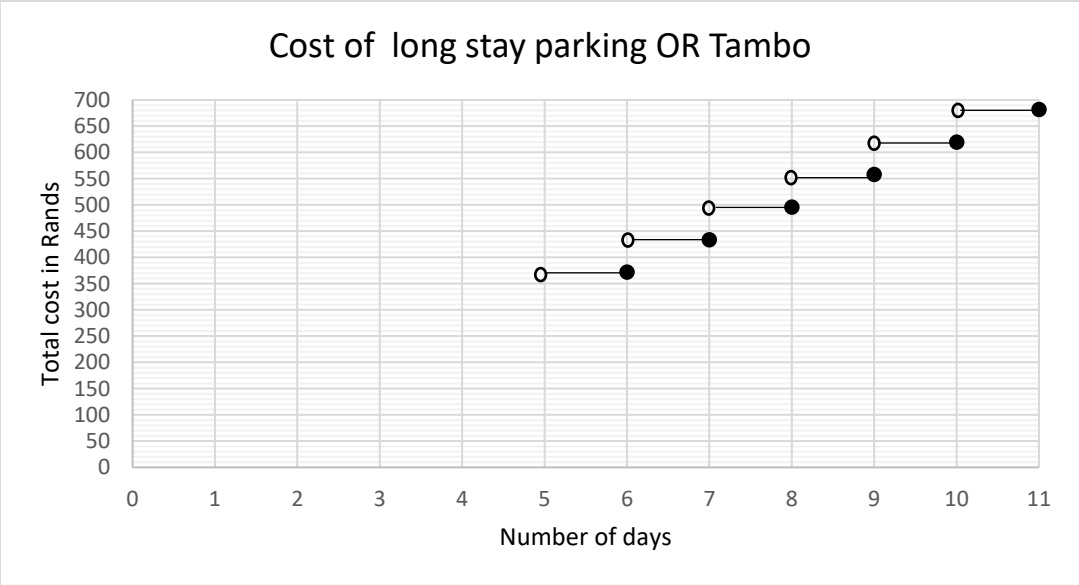
Q2	Marking guideline		Skills assessed	Topic	Level																																												
KEY	a accuracy m method mca method continued accuracy		ca continued accuracy ma method accuracy r rounding	F Finance D Data handling P probability	1 KN 2 RP 3 MSP 4 R&R																																												
2.1.1	\$5,34 billion Five billion three hundred and forty million dollars		correct value written out in words	F	2																																												
2.1.2	R220 000 000 000		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>	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		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	$\frac{R220000000000}{R220000000000} \cdot \frac{\$13500000000}{R220000000000}$ R1 : \$0,0614 rounding 4 places unit form		\$13 500 000 000 dividing by R220 000 000 000 \$0,0614 4 places R1: \$0,0614 correct unit form	F	3																																												
2.1.5	$\text{Aliko Dangote \%} = \frac{13,5}{62,71} \times 100 = 21,53\%$		sum of values 13,5 21,53%	F	2																																												
2.1.6	Age range = 76 – 59 = 17 Must be ages		subtracting correct values 17	F	1																																												

2.1.7	Probability = $\frac{3}{10} = 0,3$		3 dividing by 10 0,3	F	2
2.2.1	Bugatti Veyron: $\$2\,200\,000 \div 0,0024$ = ₦ 916 666 666,70  Number of days = $\frac{\text{₦ } 916\,666\,666,70}{\text{₦ } 14\,500\,000}$  Number of days = 63,21 = 64 whole days  <b>OR</b>  Number of days = $14,5 \times 0,0024 = \$ 0,0348$ million/day $2,2 \div 0,0348 = 63,21 \approx 64$ days		dividing \$2 200 000 by 0,0024 ₦ 916 666 666,70 dividing answer by ₦ 14 500 000 63,21 rounding up to whole days	F	3
2.2.2	(a) Percentage increase = $\frac{209 - 136,22}{136,22} \times 100$  Percentage increase = $0,5234282 \times 100\%$ Percentage increase = 53,43%		substitution numerator correctly correct denominator multiplying 100 53,43%	D	2
2.2.2	(b) December 2020 The steepness/gradient of the graph.		December 2020 The steepness/gradient graph	D	4

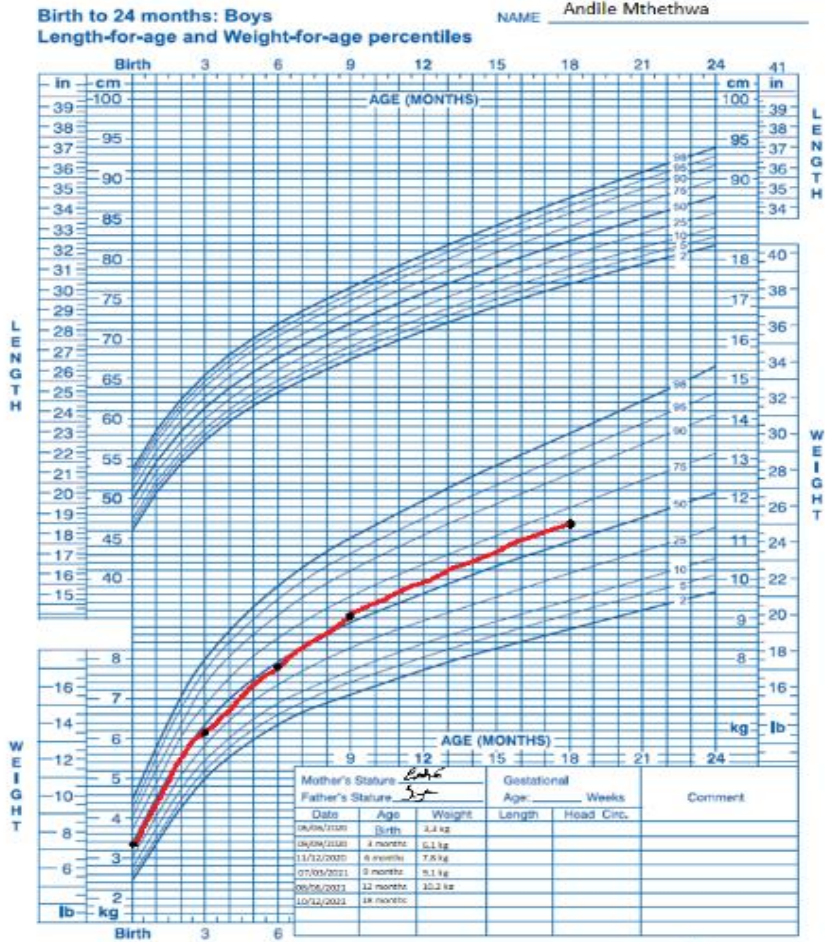
Q3	Marking guideline		Skills assessed	Topic	Level
KEY	<b>a</b> accuracy <b>m</b> method <b>mca</b> method continued accuracy		<b>ca</b> continued accuracy <b>ma</b> method accuracy <b>r</b> rounding	<b>F</b> Finance <b>D</b> Data handling <b>P</b> probability	<b>1</b> KN <b>2</b> RP <b>3</b> MSP <b>4</b> R&R
3.1.1	$2020 \text{ GDP} = \frac{\$13 \text{ billion}}{4,3} \times 100 = \text{R}302,33 \text{ billion}$		\$13 billion divide by 4,3% R302,33 billion (most have billion)	F	3
3.1.2	This data is discrete as they are countable. <b>OR</b> This data is discrete as they are whole numbers.		discrete currency is countable	D	4
3.1.3	$\text{mean} = \frac{3\,213,7}{9}$ mean = \$357,08 billion		Adding values 3213,7 dividing by 9 \$357,08 billion	D	2
3.1.4	The SA GDP decreased from 2011 to 2016. Increased from 2016 to 2018. Started decreasing from 2018 to 2019  The general trend is from 2011 to 2019 it decreased.		decreased from 2011 to 2016 Increased from 2016 to 2018 decreasing from 2018 to 2019	D	4

3.2.1	Pie chart			Pie chart	D	1												
3.2.2	$\text{Sauvignon Blanc} = 100 - 8 - 8 - 6 - 5 - 44 - 11 - 9 = 9\%$			subtract values from 100% 9%	D	2												
3.2.3	$\text{"other" sector size} = \frac{44}{100} \times 360 = 158,4^\circ$			dividing by 100 multiplying by 360 $158,4^\circ$	D	2												
3.3.1	Discovery Bank has the best interest. of 8,35% p.a.			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><math>R550\ 000 \times 8,35\% = R45\ 925</math></td> <td>R595 925</td> </tr> <tr> <td>2022</td> <td>R595 925</td> <td><math>R595\ 925 \times 8,35\% = R49\ 759,7375</math></td> <td>R645 684,7375</td> </tr> </tbody> </table>			Year	Opening Balance	Interest	Closing Balance	2021	R550 000	$R550\ 000 \times 8,35\% = R45\ 925$	R595 925	2022	R595 925	$R595\ 925 \times 8,35\% = R49\ 759,7375$	R645 684,7375	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	$R550\ 000 \times 8,35\% = R45\ 925$	R595 925															
2022	R595 925	$R595\ 925 \times 8,35\% = R49\ 759,7375$	R645 684,7375															
3.3.3	Yes, he will as his money is growing at an interest rate that is almost double the inflation rate. So, after three years he will have enough money to purchase the new equipment.			yes or will be able to purchase interest rate is almost double the inflation rate	F	4												

Q4	Marking guideline		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 = R44 841  R39 841		Adding correct values R44 841	F	2
4.1.2	Savings = R44 841 + R5 159 = R50 000		Add surplus to Q4.1.1 R50 000	F	2
4.1.3	$\text{VAT} = \frac{\text{R44 841} - \text{R5 000}}{115} \times 15 = \text{R5 196,65}$  <b>OR</b> $\text{VAT} = \text{R39 841} - \left( \frac{39\,841}{115\%} \right) = \text{R5 196,65}$		Subtract R5 000 dividing by 115 multiplying by 15 R5196,65	F	3
4.2.1	Minimum = 16 Maximum = 65		correct minimum correct maximum	D	2
4.2.2	IQR = 58 – 28 = 30		subtract 28 from 58 30	D	2
4.2.3	≈ 75%		75%	D	2
4.2.4	50% of the group is over 38, with 25% being over 58. 25% of the group is younger than 28. <b>OR</b> There is a large age gap between oldest and youngest of 49 years		50% of the group younger/older than 38 25% of the group younger than 28 <b>OR</b> 25% of the group older than 58	D	4
4.3.1	Total cost = R310 + R62 × 6 = R682 <b>OR</b> Total cost = R62 × 11 = R682		using correct tariff R310 multiplying R62 × 6 R682	F	2

<p>4.3.2</p>	<p>(a) Rate per day = <math>\frac{R390}{3} = R130</math> per day                  Rate per day = <math>\frac{R248}{4} = R62</math> per day                  Rate per day = <math>\frac{R310}{5} = R62</math> per day  <math>\therefore</math> the rate per day for 3 days is much higher, 4 and 5 days are equal</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>heading                  step function                  start values                  end values                  plotting correct y-axis</p> <p>(5; 310)                  (6; 372)                  (7; 434)                  (8; 496)                  (9; 558)                  (10; 620)                  (11; 682)</p>	<p>F</p>	<p>3</p>



Q5	Marking guideline	Skills assessed	Topic	Level																																																																								
KEY	<p><b>a</b> accuracy  <b>m</b> method  <b>mca</b> method continued accuracy</p>	<p><b>ca</b> continued accuracy  <b>ma</b> method accuracy  <b>r</b> rounding</p>	<p><b>F</b> Finance  <b>D</b> Data handling  <b>P</b> probability</p>	<p><b>1</b> KN  <b>2</b> RP  <b>3</b> MSP  <b>4</b> R&amp;R</p>																																																																								
5.1.1	<p>≈ 62,5<sup>th</sup> percentile                      Acceptable range 50<sup>th</sup>–75<sup>th</sup> percentile</p>	50 <sup>th</sup> –75 <sup>th</sup> percentile	D	2																																																																								
5.1.2	<p>(a)</p>  <p>Birth to 24 months: Boys                      Length-for-age and Weight-for-age percentiles                      NAME: Andile Mthethwa</p> <table border="1" data-bbox="584 1299 936 1474"> <thead> <tr> <th colspan="3">Mother's Stature</th> <th colspan="3">Father's Stature</th> <th colspan="2">Gestational Age</th> <th rowspan="2">Weeks</th> <th rowspan="2">Comment</th> </tr> <tr> <th>Date</th> <th>Age</th> <th>Weight</th> <th>Date</th> <th>Age</th> <th>Weight</th> <th>Length</th> <th>Head Circ.</th> </tr> </thead> <tbody> <tr> <td>09/09/2008</td> <td>Birth</td> <td>4.4 kg</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>26/09/2008</td> <td>4 months</td> <td>6.1 kg</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>11/12/2008</td> <td>8 months</td> <td>7.8 kg</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>07/03/2009</td> <td>9 months</td> <td>8.1 kg</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>26/06/2009</td> <td>12 months</td> <td>10.3 kg</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>10/12/2009</td> <td>18 months</td> <td>13.3 kg</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Mother's Stature			Father's Stature			Gestational Age		Weeks	Comment	Date	Age	Weight	Date	Age	Weight	Length	Head Circ.	09/09/2008	Birth	4.4 kg							26/09/2008	4 months	6.1 kg							11/12/2008	8 months	7.8 kg							07/03/2009	9 months	8.1 kg							26/06/2009	12 months	10.3 kg							10/12/2009	18 months	13.3 kg							<p>curve                      all points plotted correctly                      points connected</p>	D	2
Mother's Stature			Father's Stature			Gestational Age		Weeks	Comment																																																																			
Date	Age	Weight	Date	Age	Weight	Length	Head Circ.																																																																					
09/09/2008	Birth	4.4 kg																																																																										
26/09/2008	4 months	6.1 kg																																																																										
11/12/2008	8 months	7.8 kg																																																																										
07/03/2009	9 months	8.1 kg																																																																										
26/06/2009	12 months	10.3 kg																																																																										
10/12/2009	18 months	13.3 kg																																																																										

5.1.2	(b) Andile is developing well. He has a healthy weight and has moved above the 50 <sup>th</sup> percentile which is pleasing to see.		Developing well Healthy weight moved above 50 <sup>th</sup> percentile	D	4
5.1.3	(a) It means that for his age, his weight is lower than 70% of all babies his age, or 30% of all babies have a weight that is lower than his. Baby is not growing well. For this baby that lies only on the 30 <sup>th</sup> 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.		weight lower than 70% of babies his age/not growing well 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. If the baby is not healthy, they must take corrective action.		healthy/normal growth corrective action	D	4
5.2.1	R1 000		R1 000	F	2
5.2.2	More than 10 guests but less than 40 guests <b>OR</b> from 11 guests to 39 guests <b>OR</b> 10 to 40 <b>OR</b> 15 to 35		don't include 10 and 40 >10 <40	F	4
5.2.3	Fixed cost of R3 000 for the venue no matter the number of guests		Fixed cost no matter the number of guests	F	2
5.2.4	Cost = R500 + R100 × n		R500 fixed cost R150 per guest number of guests/n	F	3
5.3.1	R8 161 × 12 = R97 932		correct row & correct column multiplying by 12 R97 932	F	3
5.3.2	Annual medical aid credit = (R332 + R332 + R224) × 12 Annual medical aid credit = R888 × 12 Annual medical aid credit = R10 656		adding three correct values multiplying answer by 12 R10 656	F	3

**Total: 150 marks**