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NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2019

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.

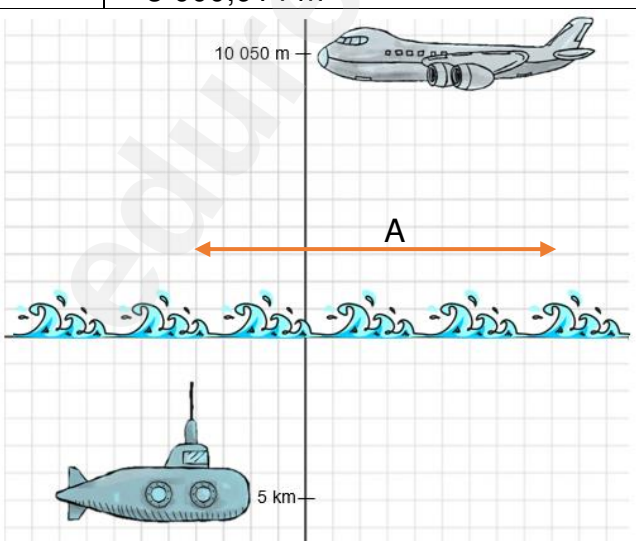
The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines. It is also recognised that, without the benefit of attendance at a standardisation meeting, there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

QUESTION 1

QUESTION	ANSWER	SKILLS ASSESSED
1.1.1 (a)	1 May 2016	1 May 2016
1.1.1 (b)	Sunday	Sunday
1.1.2	R38 – R20 = R18	Subtraction of correct values R18
1.1.3	$\frac{18}{20} \times 100$ = 90%	Correct numerator Correct denominator 90%
1.1.4	$\frac{33 + 26 + 29 + 25 + 20 + 23 + 24}{7}$ = $180 \div 7$ = R25,71	Sum of data Dividing by 7 R25,71
1.1.5 (a)	5,27%	5,27%
1.1.5 (b)	2016 – 2017 R26,00 $\times$ 1,0527 = R27,3702 2017 – 2018 R27,3702 $\times$ 1,0478 = R28,68	Increase by 5,27% R27,3702 Increasing R27,3702 by % R28,68
1.2.1	Labour OR \$1,70	Labour OR \$1,70
1.2.2	35c:30c 7:6	Ratio (correct values in correct order) Simplified ratio
1.2.3	$\frac{0,35}{3} \times 100$ = 11,67% OR $\frac{35}{300} \times 100$ = 11,67% 12%; 11,7% accepted	Fraction values correct 11,67%
1.2.4	0,45c $\times$ 1 200 = \$540 OR 45 $\times$ 1 200 = 54 000 c IF \$54 000, award unit penalty	Multiply by 1 200 \$540
1.2.5	540 $\div$ 0,13301 = R4 059,85 (money rounding penalty)	Division by exchange rate R4 059,85
1.3	\$3 $\div$ \$0,50 = 6 times	Division by correct values 6
1.4.1	Clicks	Clicks
1.4.2	R1 299	R1 299

1.4.3	$\begin{array}{r} 1\,299 \\ 1,15 \\ \hline = 1\,129,57 \end{array}$	Division $1,15$ $R1\,129,57$
1.4.4	$\begin{array}{l} 0,25 \times 1\,299 \\ = R324,75 \\ 1\,299 - 324,75 \\ = R974,25 \end{array}$ OR $\begin{array}{l} 0,75 \times 1\,299 \\ = R974,25 \end{array}$	25% of 1 299 Subtraction of 25% of 1 299 $R974,25$ OR Subtraction from 100% = 75% 75% of 1 299 $R974,25$
1.5.1	$\begin{array}{l} 180 \div 2 \\ = R90/\text{bag} \end{array}$	Division by 2 $R90$
1.5.2	$\begin{array}{l} 1\,000\text{ g} \div 250\text{ g} \\ = 4 \\ \\ R90 \times 4 \\ = R360 \end{array}$	Number of bags Cost per bag multiplied by number of bags
1.5.3 (a)	$\begin{array}{l} 1\text{ pound} = 16\text{ ounces} \\ 1\text{ pound} = 0,454\text{ kg} \\ \\ \text{Therefore} \\ 16\text{ ounces} = 0,454\text{ kg} \\ 1 \div 0,454 \times 16 \\ = 35,24 \\ = 35\text{ ounces} \end{array}$ OR $\begin{array}{l} 16 \div 0,454 \\ = 35,24 \\ = 35\text{ ounces} \end{array}$	Division by 0,454 Multiplication by 16 35 ounces
1.5.3 (b)	$\begin{array}{l} 0,08 \times 35 \\ = US\$2,80 \end{array}$ OR $\begin{array}{l} = US\$2,82 \text{ if they used previous} \\ \text{unrounded value on their calculator.} \end{array}$	CA from 1.5.3. (a) Cost (\$/ounce) multiplied by 35 $US\$2,80$

QUESTION 2

QUESTION	ANSWER	SKILLS ASSESSED
2.1.1	10:15 IF 10:15 pm	10:15
2.1.2	10:41 – 10:15 = 26 minutes	26 minutes
2.1.3	2 047,2 + 3 669,5 = 5 716,7	Addition of 2 distances 5 716,7
2.1.4	1 270 406 × 2 = 2 540 812 Two million five hundred and forty thousand eight hundred and twelve IF Have a different large number and correctly written in words	2 540 812 Two million five hundred and forty thousand eight hundred and twelve
2.2.1	10 050 + 6 000 = 16 050 m OR 10,05 + 6 = 16,05 km = 16 050 m	Addition of values Conversion of 6 km 16 050 m
2.2.2	9 843 × 0,3048 = 3 000,15 m OR 1 m = 3,28 feet 9 843 ÷ 3,28 = 3 000,914 m	Multiplication by 0,3048 3 000 m A accurately illustrated on graph
		
2.3.1	East (accept North East)	East

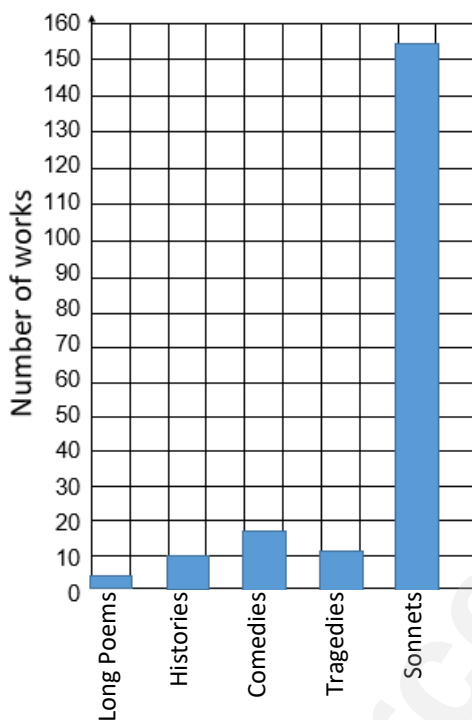
2.3.2	$1 : 5\,000$ $5,4 \times 5\,000$ $= 27\,000\text{ cm}$ $= 270\text{ m } (\div 100)$ OR $54 \times 5\,000$ $= 270\,000\text{ mm}$ $= 270\text{ m } (\div 1\,000)$	Correct use of scale Conversion
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QUESTION 3

QUESTION	ANSWER	SKILLS ASSESSED
3.1.1	80 minutes (accept 1h20)	80 minutes
3.1.2	20 min + 1 hour + 25 min + 1 min + 3 min + 12 min = 1 hour + 61 min OR 121 min = 2 hours 1 min 09:30 + 2 hrs 1 min = 11:31 IF 1 hr 44 min = 11:14 accept OR 2 hrs 4 min = 11:34 accept	Addition of the correct times Correct time to add 11:31
3.1.3	100°	100°
3.1.4	$^{\circ}\text{C} = \frac{5}{9}(350 - 32)$ $^{\circ}\text{C} = 176,667$ $^{\circ}\text{C} = 180^{\circ}\text{C}$	176,667 Rounding 180 °C
3.1.5 (a)	1 l	1 l
3.1.5 (b)	360 × 2,36 ml = 849,6 = 850 ml OR $2\frac{3}{4} \times 250 \text{ ml}$ = 687,5ml = 690 ml Check B on the measuring jug	Multiplying correct values 850 ml B correctly marked on measuring jug
		

3.2.1	$20 \text{ cm} \div 2,54$ $= 7,87$ $= 8 \text{ inch}$ A or B OR $8 \text{ inch} \times 2,54$ $= 20,32 \text{ cm}$ A or B	Division by 2,54 7,87 or 8 inch A or B Multiplication by 2,54 20,32 or 20 cm A or B
3.2.2	$d = 20$ $r = 10$ $3,142 \times 10^2 \times 6$ $= 1\,885,2 \text{ cm}^3$ OR $d = 23$ $r = 11,5$ $3,142 \times 11,5^2 \times 6$ $= 2\,493,18 \text{ cm}^3$	Radius Substitution of correct values $1\,885,2 \text{ cm}^3$ or $2\,493,18 \text{ cm}^3$
3.2.3	$L^2 \times H = 1\,885,2$ $L^2 \times 6 = 1\,885,2$ $L^2 = 1\,885,2 \div 6$ $L^2 = 314,2$ $L = \sqrt{314,2}$ $L = 17,7 \text{ cm}$ $L \approx 18 \text{ cm}$ OR $L^2 \times H = 2\,492,85$ $L^2 \times 6 = 2\,492,85$ $L^2 = 2\,492,85 \div 6$ $L^2 = 415,475$ $L = \sqrt{415,475}$ $L = 20,38 \text{ cm}$ $L \approx 20 \text{ cm}$	Substitution Division by 6 Square rooting 18 cm or 20 cm
3.3.1	Length: $10 + 22 + 10 + 22 + 20$ $= 74 \text{ cm}$ Width: $10 + 22 + 10$ $= 42 \text{ cm}$	Addition 74 cm 42 cm
3.3.2	74×42 $= 3\,108 \text{ cm}^2$ (unit penalty)	Multiplication $3\,108 \text{ cm}^2$

QUESTION 4

QUESTION	ANSWER	SKILLS ASSESSED												
4.1.1	Shakespeare's works  <table><caption>Data for Shakespeare's works bar graph</caption><thead><tr><th>Genre</th><th>Number of works</th></tr></thead><tbody><tr><td>Long Poems</td><td>4</td></tr><tr><td>Histories</td><td>11</td></tr><tr><td>Comedies</td><td>17</td></tr><tr><td>Tragedies</td><td>10</td></tr><tr><td>Sonnets</td><td>154</td></tr></tbody></table>	Genre	Number of works	Long Poems	4	Histories	11	Comedies	17	Tragedies	10	Sonnets	154	accurate plotting gaps for bar graph
Genre	Number of works													
Long Poems	4													
Histories	11													
Comedies	17													
Tragedies	10													
Sonnets	154													
4.1.2	$154 + 11 + 17 + 10 + 4$ $= 196$ OR $154 + 38 + 4$ $= 196$	Addition 196												
4.1.3	$154 \div 196 \times 100$ $= 78,6$ $= 80\%$	Division by correct values 78,6 80%												
4.1.4	$17 \div 196 \times 360$ $= 31,22^\circ$	Multiplication by 360 31,22 °												
4.2	$\frac{6}{27}$ $= \frac{2}{9}$	Numerator Denominator $\frac{2}{9}$												
4.3.1	1 361	1 361												
4.3.2	$1\ 361 - 605$ $= 756$	Subtraction 756												
4.3.3	$1\ 380 - 1\ 221$ $= 159$	Subtraction 159												
4.3.4 (a)	$2\ 950 \div 10$ $= 295$	Sum of all data Division by 10 295												
4.3.4 (b)	Hamlet, Duke of Gloucester, Othello, Iago, Anthony, Richard III, Timon, Cleopatra	Hamlet, Duke of Gloucester, Othello, Iago, Anthony, Richard III, Timon, Cleopatra												

QUESTION 5

QUESTION	ANSWER	SKILLS ASSESSED
5.1	$2,9 \text{ cm} : 100 \text{ km}$ $11,3 \text{ cm} \div 2,9 \times 100$ $= 389,655 \text{ km}$ Accept range 2,8 to 3 cm OR $1,45 \text{ cm} : 50 \text{ km}$ $11 \text{ m } 3 \text{ cm} \div 1,45 \times 100$ $= 389,655 \text{ km}$	$2,9 \text{ cm}$ Calculating distance $389,665 \text{ km}$
5.2.1	Avengers: Infinity War	Avengers
5.2.2	$100 + 94 + 93 + 69 + 55 + 45 + 36 + 35 + 34 + 31$ (realistic estimation) $= 592$ $= 600$	Estimating correct values Addition of values Rounding
5.2.3	January 29 to March 31 $= 62 \text{ days}$ $\$1\,000\,000\,000 \div 62$ $= \$16\,129\,032,26$ OR $= \$0,01612903226 \text{ billion/day}$ $= \$0,02 \text{ billion/day}$ OR for Afrikaans students $\$16\,129\,032\,260$	62 days Division by number of days $\$16\,129\,032,26$
5.3.1	F9	F9
5.3.2	22×76 $= \text{R}1\,672$	Multiplication by 76 $\text{R}1\,672$
5.3.3	$14 \times 12 + 12$ $= 180$ 186 accepted if 6 shaded-out seats included	method 180
5.4	$\text{R}76 \times 3$ $= \text{R}228$	3 Multiplication by 3 $\text{R}228$
5.5.1	$\frac{1}{4}$ $\frac{1}{8}$ OR $\frac{1}{12}$ accepted due to varieties given on image	$\frac{1}{4}$
5.5.2	$\frac{1}{3}$	$\frac{1}{3}$

5.5.3	$\frac{1}{4} \times \frac{1}{3}$ $= \frac{1}{12}$ Variations of answers accepted if students multiply answers to Q 5.5.1 and Q 5.5.2 $\frac{1}{24} \text{ OR } \frac{1}{36}$	Multiplication of 2 probabilities $\frac{1}{12}$
5.5.4	$\frac{25 - 1,85}{1,85} \times 100$ $= 1\,251,35\%$	Difference between cost & selling price Division by cost $1\,251,35\%$

Total: 150 marks