NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2020

MATHEMATICAL LITERACY: PAPER II

MARKING GUIDELINES

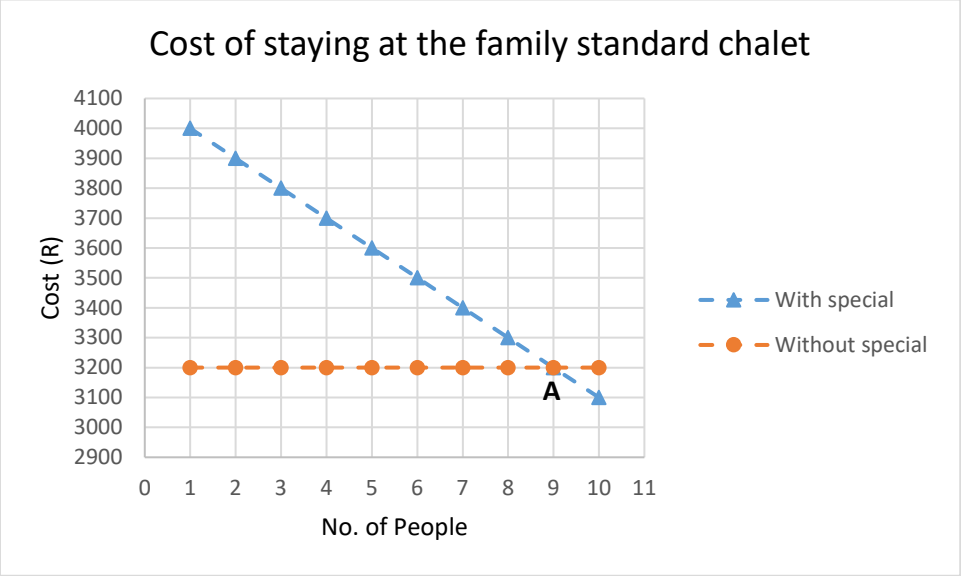
Time: 3 hours 150 marks

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

1.1	Because of inflation and not increasing their rates, they are earning less than they did.	
1.2.1	Average $= \frac{6,34 + 5,27 + 4,62 + 4,38 + 5,17}{5}$ $= \frac{25,78}{5}$ = 5,156	
1.2.2	The additional years given show predictions relating to the inflation rate in the future based on the trends achieved in the previous years.	
1.3.1	Standard: $2\,400 \times 105,16\% =$ R2 523,84 $\approx$ R2 500 Family Standard: $3000 \times 105,16\% =$ 3 154,80 $\approx$ R3 200 **OR** Standard: 2 400 × 5,16% = R123,84 = R2 523,84 $\approx$ R2 500 Family Standard: 3 000 × 5,16% = R154,80 = R3154,80 $\approx$ R3 200	
1.3.2	$\frac{5\,800 - 5\,200}{5\,200} \times 100 = 11,54\%$ **OR** $\left(\frac{5\,800}{5\,200} \times 100\%\right) - 100\% = 11,54\%$	
1.4.1	<table><tr><td>Number of people</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>8</td><td>9</td><td>10</td></tr><tr><td>Cost per night (R)</td><td>4 000</td><td>3 900</td><td>3 800</td><td>3 700</td><td>3 600</td><td>3 500</td><td>3 20</td><td>3 100</td></tr></table>	
1.4.2	C = 4 000 – 100 × (n – 1) **OR** C = 4 000 – 100 × n +100 = 4 100 – 100 × n	

1.4.3 1.4.4	 3 accuracy marks on the graph – (1 ; 4 000), (5 ; 3 600), (10 ; 3 100)	
1.4.5	9 or 10	
1.5.1	1,6 cm × 1 200 = 1 920 cm (accept 1,4 = 1800 cm)	
1.5.2	Volume $\times 10$ $= 28\ 952\ 917{,}9\ \text{cm}^3$ **OR** (if they use 1 800 cm) Volume = $\pi(\frac{1\,800}{2})^2 \times 10$ $= 25\ 434\ 000\ \text{cm}^3$	
1.5.3	$28\ 952\ 917{,}9 \div (100)^3 = 28{,}95\ \text{m}^3$ $28{,}95 \times 469 = \text{R}13\ 578{,}92$ ∴ He will not have enough. **OR** (if they use 1 800 cm) 25 434 000 ÷ $(100)^3$ = 25,434 25,434 × 469 = R11 928,55 26 × 469 = R12 194 ∴ He will have enough	
1.5.4	Circumference $= 19{,}2 \times \pi = 60{,}31\ \text{m}$ $\frac{60{,}31}{2{,}5} = 24{,}1 \approx 24$ stumps **OR** Circumference = $2 \times \pi \times 9{,}6 = 60{,}31\ \text{m}$ $\frac{60{,}31}{2{,}5} = 24{,}1 \approx 24$ stumps	

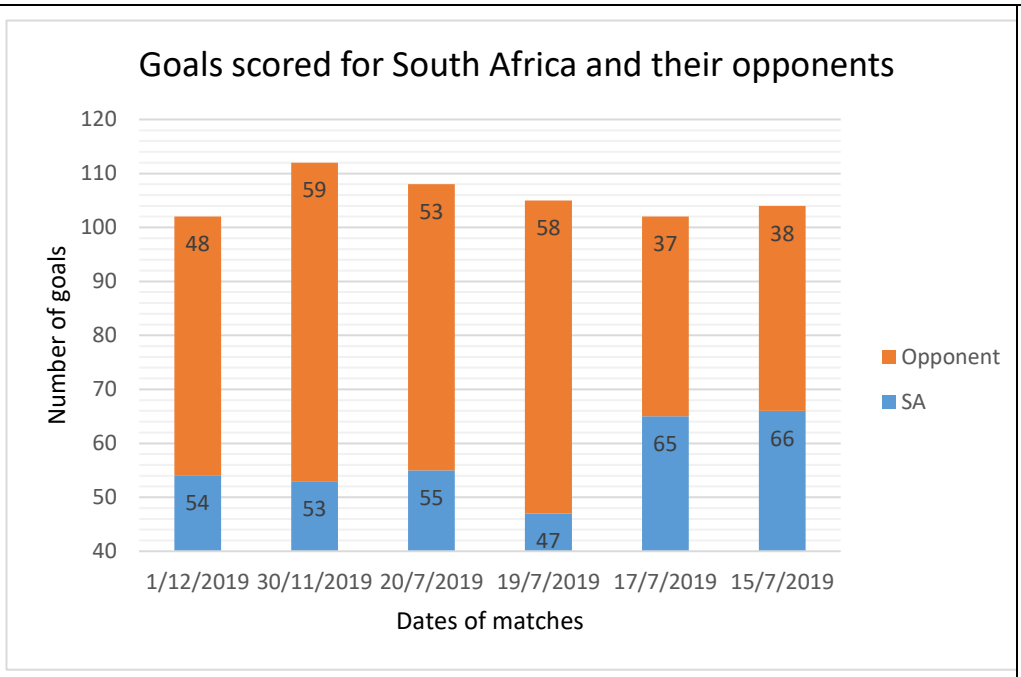
QUESTION 2

2.1.1	$11 \times 24 = 264$ hours/year $\frac{264}{261} = 1{,}011$ hours/day/driver	
2.1.2	d = 264 hrs × 50 km/h = 13 200 km $\frac{13\ 200}{100} = 132$ 132 × 9,4 L = 1 240,8 L 1 240,8 L × R 15,84 = R19 654,27 **OR** D = 50 km/h × 1 h (rounded off answer from 2.1.1) D = 50 km 9,4L : 100 km 4,7L : 50 km 4,7 L × R15,84 = R74,45 per day R74,45 × 261 working days = R19 430,93 **OR** D = 50 × 261 = 13 050 $\frac{9{,}4}{x} : \frac{100}{13\ 050}$ x = 1 226,70 1 226,70 × 15,84 = R19 430,93 Using 1,011 hours = R19 644,67 Using 1,01 hours = R19 625,24	
2.2.1	1 306 – 41 = 1 265	
2.2.2	49 × 0,25 = 12,25 hours 12 hours and 15 minutes	

QUESTION 3

3.1.1	7	
3.1.2	Upper 25% 33–36 years old Maryka Holtzhaussen = 33 years old Erin Burger = 33 Years old Phumza Maweni = 36 years old	
3.1.3	$29{,}5 = \frac{326 + x}{12}$ $29{,}5 \times 12 - 326 = x$ $x = 28$ years old No, her estimate is not correct. **OR** $\frac{326 + 29}{12} = 29{,}58$ ∴ Not correct	
3.1.4	1,9 × 3,28 = 6,232 ft 0,232 × 12 = 2,78 in ∴ 1,9 m = 6 ft and 2,78 in	
3.1.5	Answers may vary: She may be new to the team **OR** she may not have been available when they were collecting the data **OR** she is a substitute player **OR** Impact player.	
3.1.6	$\frac{4}{12} = \frac{1}{3}$ OR 0,3… **OR** 33.33…%	
3.1.7	$\frac{4}{12} + \frac{4}{12} = \frac{8}{12} = \frac{2}{3}$ **OR** 0,6… **OR** 66,66…%	
3.2.1	20 000 + 25 000 + 75 000 + 1 000 000 = R1 120 000 = R1,12 million OR 20 000 + 1 000 000 = R 1 020 000	

3.2.2	R1 200 000 = 109% Therefore 1% = R11 009,17 100% = R11 00917,43 **OR** Previous years amount = R1 200 000 ÷ 1,09 = R1 100 917,43 **OR** $\frac{1\ 200\ 000 - x}{x} \times 100 = 9\%$ $\frac{1\ 200\ 000}{x} - 1 = \frac{9}{100}$ $\frac{1\ 200\ 000}{x} = 0{,}09 + 1$ $1\ 200\,000 \div 1{,}09 = x$ $x = \text{R}1\,100\ 917{,}43$ **OR** 1 200 000 ÷ 109% = R 1 100 917,43	
3.3.1	47; 53; 54; 55; 65 Median = 54	
3.3.2	47 + 11 = 58	

3.3.3		
3.4.1	Nottingham – London 10,4 cm (Accept 10,3 -10,6) London – Birmingham 9,6 cm (Accept 9,5 – 9,8) Scale: 1,4 cm : 20 km 1,4 cm : 2 000 000 cm 1 : 1 428 571,429 N – L : 10,4 × 1 428 571,429 ÷ 100 000 = 148,571 km (accept 147,14 – 151,429) L – B : 9,6 × 1 428 571,429 ÷ 100 000 = 137,1428 km (accept 135,714 – 140) Total distance = 285,7138 km **OR** N – L : 10,4 ÷ 1,4 × 20 = 148,571 km L – B : 9,6 ÷ 1,4 × 20 = 137,1428 km Total distance = 148,571 + 137,1428 ≈258,7138 km	
3.4.2	$\frac{37,28}{0,621371} = 59,996 \approx 60$ km/h	
3.5.1	A player that is 1,78 m also has a 70% success rate. A player that is 1,83 m also has an 80% success rate.	
3.5.2	The taller the player the higher the percentage of goals scored. Player G is an outlier as she is not near the trendline, showing a tall height and low percentage goal rate.	

QUESTION 4

4.1	14 000 – 102 = 13 898 Annual Taxable Salary: 13 898 × 12 = R 166 776 Income Tax: 166 776 × 18% = R 30 019,68 30 019,68 – 14 220 – 7 794 = R 8 005,68 His statement is not valid.	
4.2	Tax = 5 404,68 $14\,000 - \frac{5\,404,68}{12} - 102 - 140 = \text{R}13\,307,61$ **OR** $13\,898 - \frac{5\,404,68}{12} - 140 = \text{R}13\,307,61$ **OR** $14\,000 - \frac{8\,005,68}{12} - 102 - 140 = \text{R}13\,090,86$ **OR** $13\,898 - \frac{8\,005,68}{12} - 140 = \text{R}13\,090,86$	
4.3	136 750 ÷ 12 = 11 395,83 14 000 – 11 395,83 = R 2 604,17 **OR** 14 000 × 12 = 168 000 168 000 – 136 750 = 31 250 31 250 ÷ 12 = R 2 604,17	

Total: 150 marks