



NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2017

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.

Topics

Finance

Maps and Plans

Measurement

Probability

Data Handling

1.1	Salary for:		Salary Increase of 6% at end of:
	Year 1: R216 000	6% × R216 000	Year 1: R12 960
	Year 2: R228 960	6% × R228 960	Year 2: R13 737,60
	Year 3: R242 697,60		
1.2	$\begin{array}{r} R216\ 000 \times 15\% = R32\ 400 \\ R228\ 960 \times 15\% = R34\ 344 \\ R242\ 697,60 \times 15\% = + R36\ 404,64 \\ \hline R103\ 148,64 \end{array}$ <p>OR</p> $\begin{array}{l} R216\ 000 + R228\ 960 + R242\ 697,60 \\ = R687\ 657,60 \times 15\% \\ = R103\ 148,64 \end{array}$		
1.3.1	$\frac{R3\ 640}{R20\ 800} \times 100\%$ $= 17,5\%$ <p>∴ 27 years old</p>		
1.3.2	$R290\ 000 \times 21,4\%$ $= R62\ 060$		
1.3.3	27,5% – 28,5% Between 27% – 27,4% Between than 26,2% – 26,9% Between 28,6% – 29,9%		
1.3.4 (a)	Each year, the amount increases by an additional 0,1% from the previous increase. OR + 1 ; + 1,1 ; + 1,2 ; + 1,3 ; + 1,4 etc.		
1.3.4 (b)	$29,9\% + 2\% + 2,1\%$ $= 34\%$		
1.4.1	$R2\ 250\ 000 \times \frac{1}{3} \text{ (or } \div 3)$ $= R750\ 000 \text{ or } R0,75 \text{ million}$		
1.4.2	$\begin{array}{l} \text{Tax} = R36\ 000 + 27\% \times (R750\ 000 - R700\ 000) \\ = R36\ 000 + 27\% \times R50\ 000 \\ = R36\ 000 + R13\ 500 \\ = R49\ 500 \\ \\ \therefore R750\ 000 - R49\ 500 \\ = R700\ 500 \\ \therefore \frac{R700\ 500}{R750\ 000} \times 100\% \\ = 93,4\% \\ \approx 93\% \end{array}$		

1.5.1	3 inches = 7,5 cm = 0,075 m 12 feet = 3,6 m 3,6 m + 0,075 m = 3,675 m												
1.5.2	3,675 m × 4,8 m = 17,64 m ² = 18 m ²												
1.5.3	<table style="width: 100%; border: none;"> <tr> <td style="width: 33%; border: none;">3 cm = 2,4 m</td> <td style="width: 33%; border: none; text-align: center;">OR</td> <td style="width: 33%; border: none;">3 cm = 2,4 m</td> </tr> <tr> <td style="border: none;">3 cm = 240 cm</td> <td style="border: none;"></td> <td style="border: none;">1 cm = 0,8 m</td> </tr> <tr> <td style="border: none;">1 : 80</td> <td style="border: none;"></td> <td style="border: none;">1 cm = 80 cm</td> </tr> <tr> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;">1 : 80</td> </tr> </table>	3 cm = 2,4 m	OR	3 cm = 2,4 m	3 cm = 240 cm		1 cm = 0,8 m	1 : 80		1 cm = 80 cm			1 : 80
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3 cm = 240 cm		1 cm = 0,8 m											
1 : 80		1 cm = 80 cm											
		1 : 80											
1.5.4	Continue along Padfield Road until you get to a 4-way stop/intersection. Turn right into Doone Road. Keep right and the entrance will be on your left. *Can use compass directions.												
2.1.1	25 th												
2.1.2	8,8 (kg)												
2.1.3	4 (months)												
2.1.4	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">31 lb – 24,5 lb = 6,5 lb</td> <td style="width: 50%; border: none; text-align: center;">OR 14,1 kg – 11,2 kg</td> </tr> <tr> <td style="border: none;">6,5 lb = 2,95 kg</td> <td style="border: none; text-align: center;">= 2,9 kg</td> </tr> <tr> <td style="border: none;">≈ 2,95 / 3 kg</td> <td style="border: none;"></td> </tr> </table>	31 lb – 24,5 lb = 6,5 lb	OR 14,1 kg – 11,2 kg	6,5 lb = 2,95 kg	= 2,9 kg	≈ 2,95 / 3 kg							
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2.1.5	(27 months) 90 th percentile												
2.1.6	90 (%)												
2.2.1	$\frac{176\ 000 - 114\ 000}{114\ 000} \times 100$ <p>= 54,39% ≈ 54%</p> <p>OR</p> $\frac{176\ 000}{114\ 000} \times 100$ <p>= 154,4% 154,4% – 100% = 54,4%</p>												
2.2.2	Number of years is different 2016 – 2021 = 5 years 2029 – 2034 = 5 years 2021 – 2029 = 8 years												

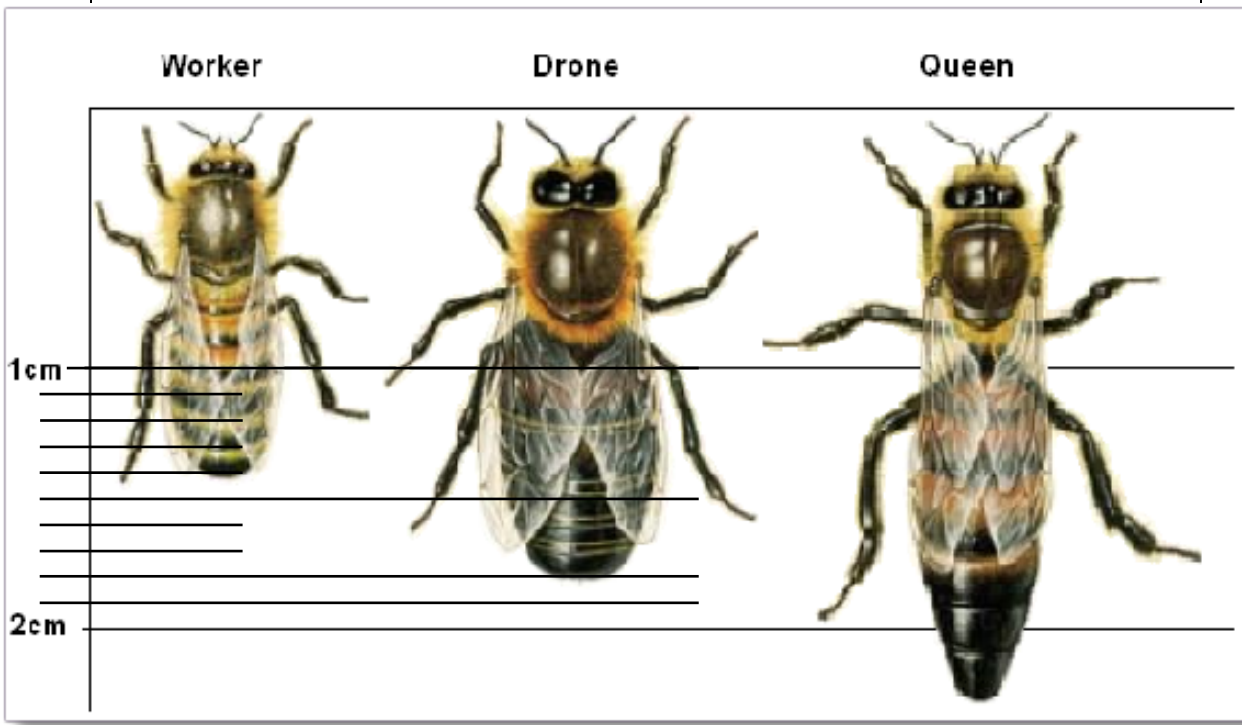
2.2.3	<table border="1"> <thead> <tr> <th>YEAR</th> <th>GRADE</th> <th>AMOUNT</th> </tr> </thead> <tbody> <tr><td>2016</td><td>1</td><td>R29 000</td></tr> <tr><td>2017</td><td>2</td><td>R29 000</td></tr> <tr><td>2018</td><td>3</td><td>R29 000</td></tr> <tr><td>2019</td><td>4</td><td>R29 000</td></tr> <tr><td>2020</td><td>5</td><td>R29 000</td></tr> <tr><td>2021</td><td>6</td><td>R45 000</td></tr> <tr><td>2022</td><td>7</td><td>R45 000</td></tr> <tr><td>2023</td><td>8</td><td>R176 000</td></tr> <tr><td>2024</td><td>9</td><td>R176 000</td></tr> <tr><td>2025</td><td>10</td><td>R176 000</td></tr> <tr><td>2026</td><td>11</td><td>R176 000</td></tr> <tr><td>2027</td><td>12</td><td>R176 000</td></tr> <tr><td>2028</td><td>1st Year</td><td>R77 000</td></tr> <tr><td>2029</td><td>2nd Year</td><td>R154 000</td></tr> <tr><td>2030</td><td>3rd Year</td><td>R154 000</td></tr> <tr> <td colspan="2"></td> <td><u>R1 500 000</u></td> </tr> </tbody> </table>	YEAR	GRADE	AMOUNT	2016	1	R29 000	2017	2	R29 000	2018	3	R29 000	2019	4	R29 000	2020	5	R29 000	2021	6	R45 000	2022	7	R45 000	2023	8	R176 000	2024	9	R176 000	2025	10	R176 000	2026	11	R176 000	2027	12	R176 000	2028	1st Year	R77 000	2029	2nd Year	R154 000	2030	3rd Year	R154 000			<u>R1 500 000</u>
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<p>2016–2020 : 5 × R29 000 = R145 000 2021–2022 : 2 × R45 000 = R90 000 2023–2027 : 5 × R176 000 = R880 000 2028 : 1 × R77 000 = R77 000 2029–2030 : 2 × R154 000 = R308 000 TOTAL = R1 500 000</p>																																																				
2.3.1	$\text{Mean} = \frac{50\,000 + 42\,010 + 40\,700 + \dots + 14\,507}{10}$ $= \frac{345\,996}{10}$ $= R34\,599,60 / R34\,600$																																																			
2.3.2	<p>Range = R50 000 – R14 507 = R35 493</p>																																																			
2.3.3	<p>University of Limpopo would fall between University of Venda and Unisa. 11 Values. Value 6 is the median.</p> <p>Stellenbosch University</p>																																																			

<p>3.1</p>	<p>Depth 2 – Depth 1 $= 1,2 \text{ m} - 0,6 \text{ m}$ $= 0,6 \text{ m}$ (Half)</p> <p>$V = (1/2 \times 0,6 \times 7) \times 4,8$ $V = 2,1 \times 4,8$ $V = 10,08 \text{ m}^3$</p> <p>$V = 10,08 \text{ m}^3 \times 1\,000 = 10\,080 \text{ l}$ Total volume $= 20\,160 \text{ l} + 10\,080 \text{ l}$ $= 30\,240 \text{ l}$</p> <p>She is correct.</p> <p style="text-align: right;">OR $20\,160 \div 2$ $= 10\,080 \text{ l}$ $20\,160 \text{ l} + 10\,080 \text{ l}$ $= 30\,240 \text{ l}$ \therefore she is correct</p>
<p>3.2</p>	<p>$30\,000 \text{ l} \div 1\,000 = 30 \text{ m}^3$</p> <p>$V = \pi \times r^2 \times ht$ $30 \text{ m}^3 = 3,14 \times (2,4)^2 \times ht$ $30 \text{ m}^3 = 18,0864 \text{ m}^2 \times ht$</p> <p>$\frac{30 \text{ m}^3}{18,0864 \text{ m}^2} = ht$</p> <p>$1,6587 \dots = ht/\text{depth}$ $1,7 \text{ m} = ht/\text{depth}$</p>
<p>3.3</p>	<p>$P = 7 \text{ m} + 4,8 \text{ m} + 7 \text{ m} + 4,8 \text{ m} = 23,6 \text{ m}$ $C = \pi \times 4,8 \text{ m} = 15,08 \text{ m}/15,07 \text{ m}$ $23,6 \text{ m} + 15 \text{ m} = 38,6 \text{ m}$ $38,6 \times 110\%$ $\approx 42,3 \text{ m}$ (could be 42,5 m if only rounded at the end)</p>
<p>3.4</p>	<p>$30\,000 \text{ l} \div 10\,000 \text{ l}$ $= 3 \times 40 \text{ g}$ $= 120 \text{ g per day} \times 31 \text{ days}$ $= 3\,720 \text{ g for the month}$</p> <p>$10\,000 \text{ g} = \text{R}325,00$ $1 \text{ g} = \frac{325}{10\,000}$ $3\,720 \text{ g} = \frac{325}{10\,000} \times 3\,720$ $= \text{R}120,90$</p> <p style="text-align: right;">OR $10 \text{ kg} : \text{R}325$ $3,72 \text{ kg}$ $= \text{R}120,90$</p> <p style="text-align: right;">[1 g = R0.0325]</p>
<p>3.5</p>	<p>19°C to 25°C</p> <p>$19 \times 9 \div 5 + 32$ $= 66,2$</p> <p>$25 \times 9 \div 5 + 32$ $= 77^\circ\text{F}$</p> <p>$77^\circ\text{F} - 66,2^\circ\text{F}$ $= 10,8^\circ\text{F}$</p> <p>$25 - 19 = 6^\circ\text{C}$ $6 \times 9 \div 5 + 32 = 42,8^\circ\text{F}$ ***INCORRECT***</p>

<p>4.1.1 (a)</p>	<p>0,5 inches = 12,7 mm 1 inch = 12,7 mm × 2 = 25,4 mm 15 inches = 25,4 mm × 15 = 381 mm</p> <p>∴ 381 mm ÷ 10 = 38,1 cm</p> <p>38,1 cm ÷ 2 cm = 19,05 times bigger</p> <p>OR</p> <p>0,5 inches = 12,7 mm 20 mm = 0,7874 inches 15 ÷ 0,7874 /0,8 = 19,05 times bigger</p> <p>OR</p> <p>0,5 inches = 12,7 mm 15 inches = 381 mm 381 ÷ 20 mm = 19,05 times bigger</p> <p>OR</p> <p>Model: 19 × 20 mm = 380 mm 380 mm ÷ 12,7 mm × 0,5 = 14,96 inches 14,96 ≈ 15</p>
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<p>4.1.1 (b)</p>	<p>19 : 1 OR 381 : 20</p>
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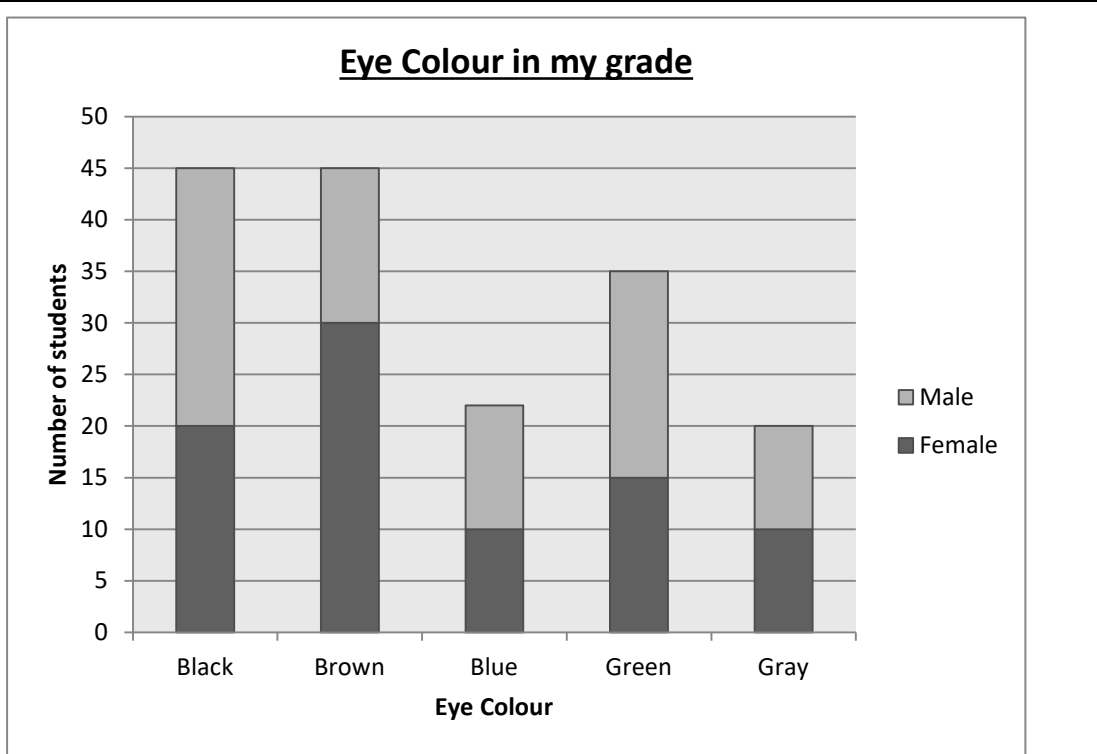
4.1.2



1,8 cm = length of drone

4.1.3	<p>24 km = 60 min</p> <p>1 km = $\frac{60}{24}$</p> <p>10 km = $\frac{60}{24}$</p> <p>= 25 min</p> <p>25 min × 60</p> <p>= 1 500 sec × 200 times/sec</p> <p>= 300 000 times</p> <p>OR</p> <p>3600 sec × 200</p> <p>= 720 000</p> <p>720 000 × 10 ÷ 24</p> <p>= 300 000</p>
4.2.1	<p>OR</p> <p>24 km = 1 hour</p> <p>10 km = 0,416 ... Hr</p> <p>= 25 min</p> <p>= 1 500 sec</p> <p>[0,42 = 302 400]</p> <p>200 times : 1 sec</p> <p>1 500 sec = 300 00 times</p>
4.2.2	<p>a – 20</p> <p>b – 12</p> <p>c – 85</p> <p>d – 167</p>
4.2.3	<p>$\frac{20}{167}$</p> <p>$\frac{10}{85}$ OR $\frac{2}{17}$</p>
4.2.4	<p>Male chosen at random</p> <p>Has black eyes</p>
4.2.5	<p>$\frac{35}{167} + \frac{20}{167}$</p> <p>= $\frac{55}{167} \times 100\%$</p> <p>= 32,93%</p>

4.2.6



Total: 150 marks