



## education

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**NORTH WEST PROVINCE**

### **NATIONAL SENIOR CERTIFICATE/ NASIONALE SENIOR SERTIKAAT**

**GRADE/GRAAD 12**

**MATHEMATICAL LITERACY P2/  
WISKUNDIGE GELETTERDHEID V2**

**SEPTEMBER 2021**

**MARKING GUIDELINES/NASIENRIGLYNE**

**MARKS/PUNTE: 150**

<b>Symbol/Kode</b>	<b>Explanation/Verduideliking</b>
<b>M</b>	Method/ <i>Metode</i>
<b>MA</b>	Method with accuracy/ <i>Metode met akkuraatheid</i>
<b>CA</b>	Consistent accuracy/ <i>Volgehoue akkuraatheid</i>
<b>A</b>	Accuracy/ <i>Akkuraatheid</i>
<b>C</b>	Conversion/ <i>Herleiding</i>
<b>S</b>	Simplification/ <i>Vereenvoudiging</i>
<b>RT/RG/RD</b>	Read from table/graph/diagram/ <i>Lees vanaf tabel/grafiek/diagram</i>
<b>AO</b>	Answer only/ <i>Slegs antwoord</i>
<b>SF</b>	Substitution in a formula/ <i>Korrekte vervanging in formule</i>
<b>O</b>	Opinion/Explain/Reason/ <i>Opinie/Verduidelik/Rede</i>
<b>P</b>	Penalty, e.g. for no units, incorrect rounding off, etc/ <i>Penalisasie, bv. Vir geen eenhede, verkeerde afronding, ens.</i>
<b>R</b>	Rounding off/ <i>Afronding</i>
<b>NPR</b>	No penalty for rounding OR omitting units/ <i>Geen penalisasie vir afronding nie</i>
<b>MCA</b>	Method with consistent accuracy/ <i>Metode met volgehoue akkuraatheid</i>

**This marking guidelines consists of 9 pages and a page with the cognitive grid/  
Hierdie nasienriglyne bestaan uit 9 bladsye en 'n bladsy met die kognitewe tabel**



<b>QUESTION/VRAAG 2 [43 MARKS/PUNTE]</b>			
<b>Q/V</b>	<b>Solution/Oplissing</b>	<b>Explanation/Verduideliking</b>	<b>T&amp;L</b>
2.1.1	6000 ✓✓RT	2RT answer (2)	MP L1
2.1.2	$\text{Density} = \frac{\text{number of spectators}}{\text{ground size (in acres)}}$ $/ \text{Digtheid} = \frac{\text{aantal toeskouers}}{\text{grootte van grond(in akker)}}$ $= \frac{39\,000}{13,7} \text{SF}$ $= 2\,888,88\dots \text{✓A}$ $\approx 2889 \text{ ✓R}$	1SF numerator 1SF denominator  1A answer  1R rounding  (4)	MP L2
2.1.3	$40 \text{ m}^2 = 42 \text{ acres/akker} \text{ ✓RT}$ $42 \text{ acres} = 4\,046,86 \times 42 \text{ ✓C}$ $= 169\,968,12 \text{ m}^2 \text{ ✓A}$ $\therefore 40 \text{ m}^2 = 169\,968,12 \text{ m}^2$ $1 : 4\,249,203 \text{ ✓CA}$  <b>OR/OF</b>  $40 \text{ m}^2 = 42 \text{ acres/akker} \text{ ✓RT}$ $40 \text{ m}^2 = \frac{40}{4046,86} \text{ ✓M}$ $= 0,000988420\dots\dots\dots \text{ m}^2 \text{ ✓A}$ $\therefore 0,000988420\dots\dots\dots : 42$ $1 : 4\,249,203 \text{ ✓A}$	1RT correct values 1C conversion 1A simplification  1CA answer as unit ratio  (4)	MP L3
2.1.4	Somerset Road ✓A Marryat Road ✓A Church Road ✓A	1A answer 1A answer 1A answer [Accept Newstead way]  (3)	MP L1
2.1.5	3 parking areas/3 parkeerareas ✓✓A	2A answer (2)	MP L1
2.1.6	Players warm up on practice courts before a match. ✓✓O <i>Spelers om op te warm voor 'n wedstryd.</i>  <b>OR/OF</b> Practice purpose/Om te oefen  <b>OR/OF</b> Any relevant reason/Enige verwante rede.	2O opinion          (2)	MP L4







<b>QUESTION/VRAAG 4 [42 MARKS/PUNTE]</b>			
<b>Q/V</b>	<b>Solution/Oplissing</b>	<b>Explanation/Verduideliking</b>	<b>T&amp;L</b>
4.1 4.1.1	$65 \text{ mm} \div 10 = 6,5 \text{ cm} \checkmark \text{C}$ $r = \frac{6,5}{2} = 3,25 \text{ cm} \checkmark \text{A}$  $A = \pi r^2$ $= (3,142)(3,25^2) \checkmark \text{SF}$ $= 33,187 \text{ cm}^2 \checkmark \text{A}$ $\approx 33 \text{ cm}^2 \checkmark \text{R}$	1C conversion 1A radius  1SF substitution 1A answer 1R rounding off  (5)	M L3
4.1.2	Length/lengte: $\checkmark \text{MA} \quad \checkmark \text{C}$ $65 \text{ mm} \times 6 = 390 \text{ mm} = 39 \text{ cm} \checkmark \text{A}$ Width/breedte: $\checkmark \text{MA}$ $65 \text{ mm} \times 3 = 195 \text{ mm} = 19,5 \text{ cm} \checkmark \text{A}$  <b>OR/OF</b> Length/lengte: $\checkmark \text{C} \quad \checkmark \text{MA}$ $(65 \text{ mm} \div 10) \times 6 = 39 \text{ cm} \checkmark \text{A}$ Width/breedte: $\checkmark \text{C} \quad \checkmark \text{MA}$ $(65 \text{ mm} \div 10) \times 3 = 19,5 \text{ cm} \checkmark \text{A}$	1MA multiply by 6 1C conversion 1A length 1MA multiply by 3 1A width  (5)	M L2
4.1.3	$\text{Volume} = 39 \times 19,5 \times 11,76 \checkmark \text{SF}$ $= 8943,48 \text{ cm}^3 \checkmark \text{CA}$  $= \frac{8\,943,48}{1000} \checkmark \text{M}$ $= 8,9 \text{ l} \checkmark \text{CA}$	<b>CA from Q 4.1.2</b> 1SF substitution 1CA simplification 1M dividing by 1000 1CA answer  (4)	M L3
4.1.4	Number of cans $= 6 \times 3 \checkmark \text{MA}$ $= 18 \text{ cans/blikkies} \checkmark \text{A}$	1MA multiplying 1A answer  (2)	MP L2
4.1.5	Volume of used space/ <i>Volume van gebruikte spasie in kartonhouer</i> : $\checkmark \text{SF} \quad \checkmark \text{M}$ $V = [3,142 \times (3,25)^2 \times 11,2] \times 18$ $= 371,6986 \times 18$ $= 6\,690,5748 \checkmark \text{CA}$ $= 6,7 \text{ l} \checkmark \text{C}$ Volume of unused space/ <i>Volume van ongebruikte spasie</i> : $= 8,9 \text{ l} - 6,7 \text{ l} \checkmark \text{M}$ $= 2,2 \text{ l} \checkmark \text{CA}$  $\therefore$ The claim is correct/ <i>Die stelling is waar.</i> $\checkmark \text{O}$	<b>CA from Q 4.1.3</b>  1SF substitution 1M multiplying by 18  1CA simplification 1C conversion  1M subtracting 1CA answer  1O conclusion	M L4

		(7)	
4.2.1	<p>Surface area (cylinder)/<i>Buite-oppervlakte silinder:</i></p> $= 2\pi r(r + h)$ $= 2 \times 3,142 \times 3,25(3,25 + 11,2) \checkmark \checkmark \text{SF}$ $= 20,423 \times 14,45 \checkmark \text{S}$ $= 295,11235 \text{ cm}^2 \checkmark \text{A}$ <p><b>OR/OF</b></p> <p>Surface area (cylinder)</p> $= 2\pi r (r + h)$ $= 2 \times 3,142 \times 32,5(32,5 + 112) \checkmark \checkmark \text{SF}$ $= 204,23 \times 144,5 \checkmark \text{S}$ $= 29\,511,235 \text{ mm}^2 \checkmark \text{A}$	<p>2SF substitution</p> <p>1S simplification</p> <p>1A answer</p> <p><b>NPR</b></p>	M L3
4.2.2	<p>Cost excluding VAT/<i>Koste voor BTW:</i></p> <p>115% of cost (include VAT) = R22,50/m<sup>2</sup></p> <p>Therefore, cost (exclude VAT)/<i>Koste voor BTW is dus:</i></p> $= \frac{22,50}{1,15} \checkmark \text{MA}$ $= \text{R}19,565$ $\approx \text{R}19,57 \checkmark \text{A}$	<p>1MA dividing by 115%</p> <p>1A answer</p>	F L2
4.3.1	<p>Speed = <math>\frac{\text{Distance}}{\text{Time}}</math></p> $= \frac{27 \text{ km}}{0,4 \text{ h}} \checkmark \text{SF}$ $= 67,5 \text{ km/h} \checkmark \text{A}$	<p>1SF substitution</p> <p>1A answer</p>	MP L2
4.3.2	<p>Most people are not working/<i>Baie mense werk nie</i> <math>\checkmark \checkmark \text{O}</math></p> <p><b>OR/OF</b></p> <p>The bus company is saving on petrol costs/<i>Die busmaatskappy probeer geld bespaar.</i></p> <p><b>OR/OF</b></p> <p>People want to do shopping for the week/<i>Mense wil inkopies doen vir die week</i></p> <p><b>OR/OF</b></p> <p>Any relevant answer/<i>Enige sinvolle antwoord.</i></p>	<p>2O opinion</p>	M L4



		(2)	
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4.3.3	<p>Knock off time/<i>Huistoe gaan tyd</i>:</p> $5 \text{ pm}/nm + 45 \text{ minutes}/minute = 17:45 \checkmark A$ <p>Knock off time + walking time/<i>Huistoe gaan tyd + stap na busstop</i>:</p> $= 17:45 + 10 \text{ minutes}/minute = 17:55 \checkmark A$ <p>Next available bus/<i>Volgende beskikbare bus</i>:</p> $18:10 \checkmark A$	<p>1A knock off time</p> <p>1A arrive at bus stop</p> <p>1A next bus</p> <p>(3)</p>	<p>MP</p> <p>L2</p>
4.3.4	$P_{(701)} = \frac{7}{10} \checkmark \checkmark A$	<p>1A numerator</p> <p>1A denominator</p> <p>(2)</p>	<p>P</p> <p>L2</p>
4.3.5	$\begin{aligned} ^\circ F &= (1,8 \times ^\circ C) + 32^\circ \checkmark SF \\ &= (1,8 \times 26^\circ) + 32^\circ \checkmark S \\ &= 46,8^\circ + 32^\circ \\ &= 78,8^\circ \checkmark A \\ &= 80^\circ \checkmark R \end{aligned}$	<p>1 SF substitution</p> <p>1S simplification</p> <p>1A answer</p> <p>1R rounding</p> <p>(4)</p>	<p>M</p> <p>L2</p>
			[42]
		<b>TOTAL/TOTAAL:150</b>	

**MATHEMATICAL LITERACY PAPER 2 ANALYSIS**

QUESTION	MEASUREMENT	FINANCE	PROBABILITY	MAPS & PLANS	TOTAL	LEVEL 1	LEVEL 2	LEVEL3	LEVEL 4
<b>1</b>	19	0	0	11	<b>30</b>	30	0	0	0
<b>2</b>	0	0	3	40	<b>43</b>	15	11	7	10
<b>3</b>	29	4	2	0	<b>35</b>	0	14	12	9
<b>4</b>	31	2	2	7	<b>42</b>	0	20	13	9
<b>ACTUAL TOTAL</b>	<b>79</b>	<b>6</b>	<b>7</b>	<b>58</b>	<b>150</b>	<b>45</b>	<b>45</b>	<b>32</b>	<b>28</b>
<b>EXPECTED TOTAL</b>	75	8	7	60	<b>150</b>	45	45	30	30
<b>ACTUAL %</b>	<b>52,7%</b>	<b>4%</b>	<b>4,6%</b>	<b>38,7%</b>	<b>100%</b>	<b>30%</b>	<b>30%</b>	<b>20%</b>	<b>20%</b>
<b>EXPECTED %</b>	<b>50% (±5%)</b>	<b>5% (±5%)</b>	<b>5%</b>	<b>40% (±5%)</b>	<b>100%</b>	<b>30% (±5%)</b>	<b>30% (±5%)</b>	<b>20% (±5%)</b>	<b>20% (±5%)</b>