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Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE/*NASIONALE SENIOR SERTIFIKAAT*

GRADE/GRAAD 12

**MATHEMATICAL LITERACY P2/
*WISKUNDIGE GELETTERDHEID V2***

NOVEMBER 2021

MARKING GUIDELINES/*NASIENRIGLYNE*

MARKS/PUNTE: 150

SYMBOL/KODE	EXPLANATION/VERDUIDELIKING
M	Method/Metode
MA	Method with accuracy/Metode met akkuraatheid
CA	Consistent accuracy/Volgehoue akkuraatheid
A	Accuracy/Akkuraatheid
C	Conversion/Herleiding
S	Simplification/Vereenvoudiging
RT	Reading from a table/graph/map/diagram/Lees vanaftabel/kaart/grafiek/diagram
SF	Correct substitution in a formula/Korrekte vervanging in formule
O	Opinion/Explanation/Reasoning /Opinie/Verduideliking/Redenasie
P	Penalty, e.g. for no units, incorrect rounding off, etc./Penalisering, bv. vir geen eenhede/verkeerde afronding, ens.
R	Rounding off/Afronding
NPR	No penalty for correct rounding minimum two decimal places/Geenpenaliseringvir korrekte afronding tot twee desimale plekke nie
AO	Answer only/Slegs antwoord
MCA	Method with constant accuracy/Metode met volgehoue akkuraatheid

**These marking guidelines consist of 19 pages.
*Hierdienasienriglynebestaanuit 19 bladsye.***

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out (cancelled) an attempt to a question and NOT redone the solution, mark the crossed out (cancelled) version.
- Consistent accuracy (CA) applies in ALL aspects of the marking guidelines; however it stops at the second calculation error.
- Note: consistent accuracy (CA) does not apply in cases of a breakdown.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra item presented.

As a general marking principle, if a candidate has incurred one mistake and there is evidence of sound mathematics thereafter, then that candidate should lose one mark only.

LET WEL:

- As 'n kandidaat 'n vraag TWEE KEER beantwoord, merk slegs die EERSTE poging.
- As 'n kandidaat 'n antwoord van 'n vraag doodtrek (kanselleer) en nie oordoen nie, merk die doodgetrekte (gekanselleerde) poging.
- Volgehoue akkuraatheid (CA) word in ALLE aspekte van die nasienriglyne toegepas, dit hou op by die tweede berekeningsfout.
- Let wel: volgehoue akkuraatheid (CA) geld nie in die geval van 'n afbreuk nie.
- Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra item.
- 'n Algemene merkbeginsel is dat indien 'n kandidaat een fout maak en daarna voortgaan met korrekte wiskunde, dat die kandidaat slegs een punt verloor.

QUESTION/VRAAG 1 [29 MARKS/PUNTE] Answer Only AO - full marks			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
1.1.1	Total mass/Totale massa = $6 \times 110\text{g}$ ✓MA = 660 g ✓A	1MA multiply mass by 6 1A mass (2)	M L1
1.1.2*	Radius = 32 mm ✓✓A	2A radius (2)	M L1
1.1.3	A ✓✓A	2A correct letter [accept: mm ³] (2)	M L1
1.1.4*	Total No. of days/Totale getal dae = 11 Jan to 31 Mar ✓ MA = (31 – 10) + 28 + 31 ✓ MCA = 21 + 28 + 31 = 80 ✓CA	1MA days in Jan 1MCA adding days in 3 months 1CA simplification (3)	M L1

Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
1.1.5*	Price for 2 Pringles/Prys vir 2 Pringles $= 2 \left(\frac{R100}{6} \right)$ ✓ MA $= 2 \times R16,666$ $= R33,33$ ✓ CA	1MA dividing price by 6 and multiplying by 2 1CA simplification NPR (2)	M/F L1
1.2.1	A ✓✓ A	2A correct letter (2)	M L1
1.2.2	D ✓✓ A	2A correct letter Accept 60 km/h (2)	M L1
1.3.1	$7,3 \text{ m} = 7,3 \times 100 \text{ cm}$ ✓ MA $= 730 \text{ cm}$ ✓ A	1MA multiplying correct value by 100 1A simplification (2)	M L1
1.3.2*	$D = 7,3 \text{ m} - 5,2 \text{ m}$ ✓ MA $= 2,1 \text{ m}$ ✓ CA	1MA difference of correct lengths 1CA simplification (2)	M L1
1.3.3	0,5m ✓✓ A	2A height (2)	M L1
1.4.1*	<p>✓A A layout plan is a top view that shows the arrangement of features. ✓A 'n Uitlegplan is die bo-aansig wat die rangskikking van die voorwerpe aantoon.</p> <p>OR/OF</p> <p>A layout plan is the structural arrangement of items within a certain space. 'n Uitlegplan is die strukturele rangskikking van items binne 'n bepaalde ruimte.</p> <p>OR/OF</p> <p>Plan of the entire inside cabin, showing location of seats, exit doors etc. 'n Plan van die hele binnekant van die kajuut wat die posisie van sitplekke, uitgang, deure ens. aantoon</p> <p>OR/OF</p> <p>Drawing to scale showing physical arrangements of all resources that consume space within facilities. 'n Skaaltekening wat die fisiese posisies van al die items van spasie in beslag neem binne die fasiliteit</p>	2Aexplanation (2)	MP L1

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
1.4.2*	28 ✓✓A	2A number of seats (2)	MP L1
1.4.3	✓A ✓A G1	1A correct seat 1A correct row (2)	MP L1
1.4.4*	6 ✓✓A	2A correct number (2)	P L1
		[29]	

QUESTION/VRAAG 2 [24MARKS/PUNTE]			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
2.1	3 ✓✓A	2A correct number (2)	MP L2
2.2	Living room/Woonkamer ✓✓A	2A correct room (2)	MP L1
2.3	North East or NE/Noordoos of NO ✓✓A	2A direction (2)	MP L2
2.4*	$P_{\text{not interior/nie binne}} = P_{\text{exterior/buite}}$ $= \frac{2}{6} \quad \checkmark\checkmark\text{RT}$ $= \frac{1}{3} \quad \checkmark\text{A}$ $= \frac{1}{3} \quad \checkmark\text{CA}$ <p style="text-align: center;">OR/OF</p> $P_{\text{not interior/nie binne}} = 1 - \frac{4}{6} \quad \checkmark\text{MA}$ $= \frac{2}{6} \quad \checkmark\text{RT}$ $= \frac{1}{3} \quad \checkmark\text{A}$ $= \frac{1}{3} \quad \checkmark\text{CA}$	2RT numerator 1A denominator 1CA simplification <p style="text-align: center;">OR/OF</p> 1MA probability of NOT 1RT numerator 1A denominator 1CA simplification (4)	P L2
2.5	✓A ✓✓O Jan is wrong, the kitchen is on the Southern side. In South Africa it does not get a lot of sun. <i>Jan is verkeerd. Die kombuis is aan die suidlike kant. In Suid-Afrika kry dit nie baie son nie.</i>	1A wrong 2O reasoning (3)	MP L4
2.6	It cannot be the view showing the kitchen and dining room, as it does not show the extra window for the bathroom. ✓✓O <i>Dit kannie die kombuis en eetkamer wees nie want dit wys nie die venster van die badkamer nie.</i> It does not show the other rooms on both sides of the windows. <i>Dit wys nie die ander kamers weerskante van die vensters nie.</i> <p style="text-align: center;">OR/OF</p> It shows the veranda, door, bedroom and livingroom windows. <i>Dit wys die stoep, deur en slaapkamer en woonkamervensters.</i> <p style="text-align: center;">OR/OF</p>	2O reason	MP L4

Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
	<p align="center">OR/OF</p> <p>Because there is no veranda on the side of the kitchen and the picture shows the veranda. <i>Daar is nie 'n stoep aan die kombuis se kant nie en die prent toon 'n stoep</i></p> <p align="center">OR/OF</p> <p>The drawing shows the SE elevation and the kitchen is on the SW side. <i>Die prent toon die SO aansien die kombuis is aan die SW kant.</i></p> <p align="center">OR/OF</p> <p>The windows shown does not look like kitchen windows, they are too big. <i>Die vensters wat aangetoon word lyk nie soos kombuisvensters nie, hulle is te groot</i></p> <p align="center">OR/OF</p> <p>The drawing represents the front view. <i>Die prent is die vooraansig</i></p> <p align="center">OR/OF</p> <p>Kitchen should be on the left-hand side with the window and door / The door knob is on the right-hand side and not on the left-hand side of the door adjacent to the kitchen window. <i>Kombuis moet aan die linkerkant met die vensterendeur wees / Die deurknop is aan die regterkant en nie aan die linkerkant van die deur wat grens aan die kombuisvenster nie.</i></p>		
2.7.1*	<p>10 mm : 1 000 mm ✓A = 1 : 100 ✓CA</p> <p align="center">OR/OF</p> <p>1 cm : 100 cm ✓A = 1 : 100 ✓CA</p>	<p>1A correct ratio and conversion 1CA simplification OR/OF 1A correct ratio and conversion 1CA simplification AO</p>	MP L2
2.7.2	<p align="right">✓A</p> <p>Length on floor plan/Lengte op die vloerplan = 4,4 cm</p> <p>1 cm = 100 cm 4,4 cm = 4,4 × 100 cm ✓MCA = 440 cm ✓CA = 4,4 m ✓C</p> <p align="center">OR/OF</p>	<p>CA from 2.7.1 1A correct measurement</p> <p>1MCA using the scale 1CA simplification 1C conversion Accept 4,3 m to 4,5 m</p>	MP L3

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
	<p>1 cm is 1 000 mm ✓A 4,4 cm is 4 400 mm ✓MCA ✓CA 4 400 mm = 4,4 m ✓C</p> <p style="text-align: center;">OR/OF</p> <p>1cm : 1 000 mm ✓MCA 1cm : 1 m ✓C ✓A 4,4 cm : 4,4 m ✓CA</p>	<p>1A correct measurement 1MCA using the scale 1CA simplification 1C conversion</p> <p style="text-align: center;">OR/OF</p> <p>1MCA using the scale 1C conversion 1A correct measurement 1CA simplification (4)</p>	
2.7.3	<p>Jan is correct. ✓A ✓✓O When a photocopy is made the size of the plan may change while the number scale remains the same.</p> <p><i>Jan is korrek. Wanneer jy 'n fotostaat maak, kan die grootte van die plan verander en die getalskaal bly dieselfde</i></p>	<p>1A opinion 2O verification (3)</p>	MP L4
		[24]	

QUESTION/VRAAG 3 [35 MARKS/PUNTE]			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
3.1.1	$\begin{aligned} & \checkmark\text{RT} \quad \checkmark\text{MA} \\ \mathbf{A} &= 162 \text{ cm} + 1,5 \text{ cm} + 1,5 \text{ cm} \\ &= 162 \text{ cm} + (1,5 \text{ cm} \times 2) \\ &= 165 \text{ cm} \quad \checkmark\text{CA} \end{aligned}$	1RT inside length 1MA adding both sides 1CA simplification (3)	M L1
3.1.2*	$\begin{aligned} & \checkmark\text{RT} \quad \checkmark\text{MA} \\ \mathbf{B} &= 80 \text{ cm} - (40 \text{ cm} + 4,5 \text{ cm} + 1,5 \text{ cm} + 1,5 \text{ cm}) \\ &= 32,5 \text{ cm} \quad \checkmark\text{CA} \end{aligned}$	1RT both heights 1MA subtracting 1CA simplification (3)	M L1
3.2	$\begin{aligned} 31,496 \text{ inches/duim} &= 80 \text{ cm} \quad \checkmark\text{RT} \\ 1 \text{ inch/duim} &= \frac{80}{31,496} \text{ cm} \quad \checkmark\text{MA} \\ &= 2,54 \text{ cm} \quad \checkmark\text{A} \end{aligned}$	1R The height 80 cm 1MA dividing by 31,496 1A simplification (3)	M L2
3.3.1	$\begin{aligned} \text{Area of a rectangle} &= \text{length} \times \text{width} \\ \text{Opp van 'n reghoek} &= \text{lengte} \times \text{breedte} \\ &= 165 \text{ cm} \times 80 \text{ cm} \quad \checkmark\text{MCA} \\ &= 13\,200 \text{ cm}^2 \quad \checkmark\text{CA} \end{aligned}$	CA from 3.1.1 1MCA substitution 1CA simplification (2)	M L2
3.3.2*	$\begin{aligned} \text{Area of a rectangle} &= 13\,200 \text{ cm}^2 \\ &= \frac{13200}{(100)^2} \text{ m}^2 \quad \checkmark\text{MCA} \\ &= 1,32 \text{ m}^2 \quad \checkmark\text{CA} \end{aligned}$ <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-top: 10px;"> or Area $= 1,65 \times 0,8$ $= 1,32 \text{ m}^2$ </div>	CA from 3.3.1 1MCA dividing by 100^2 or 10 000 1CA simplification AO (2)	M L2
3.3.3	$\begin{aligned} 1 \ell \text{ covers/bedek} & 6,9 \text{ m}^2 \\ n \ell \text{ covers/bedek} & 1,32 \text{ m}^2 \\ n &= \frac{1,32}{6,9} \quad \checkmark\text{MA} \\ &= 0,1913... \ell \quad \checkmark\text{CA} \\ \text{To paint three coats/} & \text{Om drie lae te verf} \\ & \checkmark\text{MA} \\ 0,1913... \ell \times 3 &= 0,57 \ell \quad \checkmark\text{CA} \\ & \checkmark\text{R} \end{aligned}$	CA from 3.3.2 1MA dividing by 6,9 1CA simplification 1MA multiplying with 3 1CA simplification 1R rounding	M L3

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
	<p style="text-align: center;">OR/OF</p> <p>Total area to cover / <i>Totale oppervlakte om te dek</i> $\checkmark\text{MA}$ $= 1,32 \text{ m}^2 \times 3 = 3,96 \text{ m}^2 \quad \checkmark\text{CA}$</p> <p>1 ℓ covers/<i>bedek</i> $6,9 \text{ m}^2$ x ℓ covers /<i>bedek</i> $3,96 \text{ m}^2$ $\checkmark\text{MA}$ $x = \frac{3,96}{6,9} = 0,57 \text{ ℓ} \quad \checkmark\text{CA} \quad \checkmark\text{R}$</p> <p style="text-align: center;">OR/OF</p> <p>Paint needed/<i>Verf benodig</i> $\checkmark\text{MA}$ $= \frac{1,32 \times 2}{6,9} \text{ ℓ} + \frac{1,32}{6,9} \text{ ℓ} \quad \checkmark\text{MA}$ $\checkmark\text{CA} \quad \checkmark\text{CA}$ $= 0,38 \text{ ℓ} + 0,19 \text{ ℓ}$ $= 0,57 \text{ ℓ} \quad \checkmark\text{R}$</p> <p style="text-align: center;">OR/OF</p> <p>Total area to cover / <i>Totale oppervlakte om te dek</i> $\checkmark\text{MA} \quad \checkmark\text{CA}$ $= 1,32 \text{ m}^2 \times 3 = 3,96 \text{ m}^2$ Spread rate/ <i>Spreikoers</i> = $\frac{1 \text{ ℓ}}{6,9 \text{ m}^2} \quad \checkmark\text{MA}$ $= 0,144... \text{ ℓ/m}^2$ Total amount of litres / <i>Totale aantal liters</i> $= 0,144 \times 3,96 \quad \checkmark\text{CA}$ $= 0,57 \text{ ℓ} \quad \checkmark\text{R}$</p> <p style="text-align: center;">OR/OF</p> <p>Spread rate/ <i>Spreikoers</i> = $\frac{1 \text{ ℓ}}{6,9 \text{ m}^2} \quad \checkmark\text{MA}$ $= 0,144... \text{ ℓ/m}^2$ Paint needed for 1 coat/ <i>Verf nodig vir 1 laag</i> $= 0,144 \times 1,32 = 0,19... \text{ ℓ} \quad \checkmark\text{CA}$ Paint needed for 3 coats/ <i>Verf nodig vir 3 lae</i> $\checkmark\text{MA}$ $= 0,19... \times 3 \quad \checkmark\text{CA}$ $= 0,57 \text{ ℓ} \quad \checkmark\text{R}$</p>	<p>1MA multiplying with 3 1CA simplification</p> <p>1MA dividing by 6,9 1CA simplification 1R rounding</p> <p style="text-align: center;">OR/OF</p> <p>1MA dividing by 6,9 1MA adding the 2 coats and 1 1CA simplification 1CA simplification 1R rounding</p> <p style="text-align: center;">OR/OF</p> <p>1MA multiplying with 3 1CA simplification 1MA dividing by 6,9</p> <p>1CA simplification 1R rounding</p> <p style="text-align: center;">OR/OF</p> <p>1MA dividing by 6,9</p> <p>1CA simplification</p> <p>1MA multiplying with 3 1CA simplification 1R rounding</p> <p style="text-align: right;">(5)</p>	
3.3.4	$0,57 \text{ ℓ} \times 1\,000 \quad \checkmark\text{MCA}$ $= 570 \text{ mℓ} \quad \checkmark\text{CA}$ Not valid $\checkmark\text{O}$ <i>Nie geldig nie</i>	1MCA (from Q3.3.3 multiply by 1 000) 1CA simplification 1O verification	M L4

Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
	<p>OR/OF</p> <p>500 ml ÷ 1 000 ✓MCA</p> <p>= 0,5 l less than 0,57l ✓CA</p> <p>Tsidi's statement is invalid ✓O</p> <p>OR/OF</p> <p>1 l covers/bedek 6,9 m²</p> <p>500 ml covers/bedek $\frac{6,9}{2} = 3,45 \text{ m}^2$ ✓MCA</p> <p>Area to paint / Opp om te verf = 1,32 m² × 3 = 3,96 m² ✓CA</p> <p>The paint is not enough / invalid ✓O</p> <p>Die verf is nie genoeg / nie geldig</p> <p>OR/OF</p> <p>Coverage per coat/Dekking per laag</p> <p>= $\frac{500 \text{ ml}}{3} = \frac{0,5 \text{ l}}{3} = 0,166..$ ✓MCA</p> <p>Coverage /Dekking = 0,166 × 6,9</p> <p>= 1,15 m² ✓CA</p> <p>1,32 m² needs to be covered per coat/moet per laag gedek word.</p> <p>Not valid / Nie geldig nie ✓O</p>	<p>OR/OF</p> <p>1MCA (from Q3.3.3 dividing by 1 000)</p> <p>1CA simplification</p> <p>1O verification</p> <p>OR/OF</p> <p>1MCA area</p> <p>1CA simplification</p> <p>1O verification</p> <p>OR/OF</p> <p>1MCA dividing</p> <p>1CA simplification</p> <p>1O verification</p> <p>(3)</p>	
3.4.1*	<p>Number of boxes/ Getal bokse</p> <p>= $\frac{162 \text{ cm}}{34,5 \text{ cm}}$ ✓MA</p> <p>✓C</p> <p>= 4,695... ✓CA</p> <p>∴ 4 boxes ✓R</p> <p>OR/OF</p> <p>Number of boxes/ Getal bokse</p> <p>= $\frac{1\,620 \text{ mm}}{345 \text{ mm}}$ ✓C</p> <p>✓MA</p> <p>= 4,695... ✓CA</p> <p>∴ 4 boxes ✓R</p>	<p>1MA dividing</p> <p>1C conversion</p> <p>1CA simplification</p> <p>1R rounding down</p> <p>OR/OF</p> <p>1C conversion</p> <p>1MA dividing</p> <p>1CA simplification</p> <p>1R rounding down</p> <p>(4)</p>	<p>M</p> <p>L2</p> <p>#</p>

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
3.4.2	<p>Number of single files/ <i>Getal enkel lêers</i></p> $= \frac{162\text{cm}}{8,1\text{cm}} \quad \checkmark\text{MA}$ $= 20 \quad \checkmark\text{A}$ <p>Number of files in boxes / <i>Getal lêers in 'n boks</i></p> $= 4 \times 4 \quad \checkmark\text{RT}$ $= 16 \quad \checkmark\text{CA}$ <p>Difference in the number of files/ <i>Verskil in getal lêers</i></p> $= 20 - 16$ $= 4 \quad \checkmark\text{CA}$	<p>CA number of boxes from 3.4.1</p> <p>1MA dividing 1A simplification</p> <p>1RT number of files in a box 1CA simplification</p> <p>1CA difference in files</p> <p>(5)</p>	M L3
3.4.3	<p>Neater storage/ <i>Netjieser berging</i> $\checkmark\checkmark\text{O}$</p> <p style="text-align:center">OR/OF</p> <p>Files stand up straight/ <i>Die lêers staan regop</i></p> <p style="text-align:center">OR/OF</p> <p>Prevents dust on documents in the files/ <i>Verhoed dat stof op die dokumente in die lêers kom.</i></p> <p style="text-align:center">OR/OF</p> <p>It is easier to separate the files accordingly. <i>Dit is makliker om haar lêers te verdeel</i></p> <p style="text-align:center">OR/OF</p> <p>To categorise /organise her files/ <i>Dit is om haar lêers te katagoriseer /organiseer</i></p> <p style="text-align:center">OR/OF</p> <p>Prevent files from breaking/ damage/protect files <i>Verhoed dat lêers breek of beskadig/beskerm lêers</i></p>	<p>2O reason</p> <p>(2)</p>	M L4
3.4.4	$P = \frac{1}{16} \times 100\% \quad \checkmark\text{A}$ $= 6,25\% \quad \checkmark\text{MCA}$ $\quad \checkmark\text{CA}$	<p>CA denominator from 3.4.2 1A numerator 1MCA denominator</p> <p>1CA simplification</p> <p>(3)</p>	P L2
		[35]	

QUESTION/VRAAG 4 [33 MARKS/PUNTE]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
4.1.1	<p>✓✓A Perennial garden bed./Meerjarige tuinbeddings OR/OF Compost / Kompos</p>	<p>2A correct feature (2)</p>	MP L2
4.1.2	<p>Water is scarce/Water is skaars OR/OF Rain water is free compared to tap water ✓✓O Reënwater is gratis in vergelyking met kraanwater OR/OF Pay less water bills/Betaal minder vir water OR/OF Water storage/ om water te stoor OR/OF To save water for future use Om water te spaar vir toekomstige gebruik OR/OF To harvest rain water Om reënwater op te gaar</p>	<p>2A Reason (2)</p>	MP L4
4.1.3	<p>Greenhouse roof/ gutters / Kweekhuis dak/geute ✓O OR/OF Livestock Barn roof/ gutters / Vee stoor dak/geute ✓O OR/OF Solar greenhouse roof / gutters/ Sonkrag kweekhuis</p>	<p>1A correct structure 1A 2nd correct structure Accept roof and gutter /pipe full marks (Any 2 structures) (2)</p>	MP L4
4.1.4	<p>Area/Oppervlakte = $\frac{1}{2} \times 17,024 \text{ m} \times 19,5 \text{ m}$ ✓RT ✓RT = 165,984 m² ✓CA</p>	<p>1RT correct height 1RT correct base 1CA area of a triangle NPR (3)</p>	M L2
4.1.5	<p>Option/Opsie A = R1 154 × 2 ✓MA = R2 308 ✓CA Option/Opsie B = R127,30 × 19 ✓MA = R2 418,70 ✓CA Option A. ✓O Opsie A.</p>	<p>1MA multiply by 2 1CA option A cost 1MA multiply by 19 1CA option B cost 1O best option (5)</p>	MF L4

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
4.2	<p>Volume = $3,142 \times r^2 \times \text{height/hoogte}$</p> <p>✓SF $5000 \ell = 3,142 \times r^2 \times 220 \text{ cm}$</p> <p>✓C $5000\ 000 = 691,24 \times r^2$</p> <p>$\frac{5\ 000\ 000}{691,24} = r^2$ ✓M</p> <p>$7233,377698 = r^2$ ✓S</p> <p>$\sqrt{7233,377698} = r$ ✓M</p> <p>$85,05 \text{ cm} = r$ ✓CA</p>	<p>1SF substituting 5000</p> <p>1C converting ℓ to cm^3</p> <p>1M dividing by 691,24</p> <p>1S simplification</p> <p>1M finding square root</p> <p>1CA radius value NPR</p> <p>(6)</p>	M L3
4.3.1*	<p>$18 : 42$ ✓A</p> <p>$= 3 : 7$ ✓CA</p>	<p>1A correct order and values</p> <p>1CA only if one value is correct or reversed order</p> <p>(2)</p>	MP L1
4.3.2	<p>Height/hoogte = $\frac{42''}{12''} = 3,5 \text{ feet/voet}$ ✓MA</p> <p>$3,28084 \text{ feet/voet} = 1\ 000 \text{ mm}$</p> <p>$\therefore 3,5 \text{ feet/voet} = \frac{3,5}{3,28084} \times 1\ 000$ ✓C</p> <p>$= 1\ 066,799\dots \text{mm}$ ✓CA</p> <p>OR/OF</p> <p>$3,28084 \text{ feet} = 1\ 000 \text{ mm}$</p> <p>1 foot = n ✓MA</p> <p>$n = 304,79999 \text{ mm}$</p> <p>1 foot = 12 inches</p> <p>Then 12 inches = $304,79999 \text{ mm}$</p> <p>1 inch = $\frac{304,79999 \text{ mm}}{12}$ ✓C</p> <p>$= 25,39999 \text{ mm}$</p> <p>Therefore 42 inches = $42 \times 25,39999 \text{ mm}$</p> <p>$= 1066,7999 \text{ mm}$</p> <p>$= 1\ 066,8 \text{ mm}$ ✓CA</p>	<p>1MA converting to feet</p> <p>1C converting to mm</p> <p>1CA simplification</p> <p>OR/OF</p> <p>1MA converting to feet</p> <p>1C converting to mm</p> <p>1CA simplification NPR</p> <p>(3)</p>	M L2

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
4.3.3	(a) iii ✓A (b) i ✓A (c) ii ✓A	3A correct Roman numeral (3)	MP L1
4.3.4	Q ✓✓A	2A correct letter (2)	MP L1
4.3.5*	✓✓A The notch labelled S is placed against B and the notch labelled R is placed against C ✓A <i>Die sitplek word bo-op die kantspanstukke geplaas</i> <i>Die uitkeping S word op B geplaas en die uitkeping R word teen C geplaas.</i>	2A mentioning the position of the 1st notch 1A second notch (3)	MP L4
		[33]	

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
5.1.4	<p>Number of litres in 23 gallons/<i>Getal liter in 23 gelling</i></p> <p>$= 3,785 \times 23$ ✓ C</p> <p>$= 87,055$ litre ✓ S</p> <p>Cost of 87,055 litre/ <i>Prys vir 87,055 liter</i></p> <p>$= 87,055 \times R15,97$</p> <p>$= R1\ 390,27$ ✓ CA</p> <p>Valid/ <i>Geldig.</i> ✓ O</p> <p style="text-align: center;">OR/OF</p> <p>Number of litres / <i>Getal liter</i></p> <p>$= \frac{R1400}{R\ 15,97}$</p> <p>$= 87,664..$ litre ✓ S</p> <p>Number of gallons / <i>Getal gellings</i></p> <p>$= \frac{87,664}{3,785}$ ✓ C</p> <p>$= 23,16$ gallons ✓ CA</p> <p>Can buy more with R1 400/<i>Kan meer koop met R 1400</i></p> <p>Valid / <i>Geldig</i> ✓ O</p>	<p>1C gallons to litre</p> <p>1S simplification</p> <p>1CA cost of fuel</p> <p>1O conclusion</p> <p style="text-align: center;">OR/OF</p> <p>1S simplification</p> <p>1C gallons to litre</p> <p>1CA cost of fuel</p> <p>1O conclusion</p> <p>NPR</p> <p style="text-align: right;">(4)</p>	MF L4

Q/V	Solution/Oplossing	Explanation/Verduidelik	T/L
5.1.5	<p>1 full tank of fuel/ 1 vol tenk = 23 gallons /gelling ✓ A He can travel/ Hykan reis = $23 \times 18 = 414$ miles</p> <p>Distance/afstand ✓ RT Greenfield - Fitchburg = 49 miles/myl Number of trips on 1 full tank /Getalritte met 1 voltenk</p> <p>$= \frac{414}{49} = 8,448..$ ✓ MA ✓ CA \therefore 8 trips on 1 full tank / 8 ritte met 1 voltenk</p> <p>So, then he will fill tank back to 23 gallons Dan hervulhy die tenk tot 23 gelling</p> <p>Amount of fuel for 1 return trip/ brandstofvir1heen-en-weer reis $= \frac{98}{18} = 5,44$ gallon ✓ MA ✓ CA Left in a tank is $23 - 5,44 = 17,56$ gallons. ✓ MA ✓ CA Oor in die tenk is $23 - 5,44 = 17,56$ gelling</p> <p>OR/OF ✓ RT Distance/afstand_(Greenfield and Fitchburg) = 49 miles/myl</p> <p>Weekly must travel/ moet weekliks ry $= 5 \times 2 = 10$ trips ✓ MA</p> <p>He can travel = $23 \times 18 = 414$ miles with a full tank. ✓ MA Hy kan 414 myl ry met 'n vol tenk, 8 trips is $49 \times 8 = 392$ miles – now he needs to refill after Thursday's trips 8 ritte is 392 myl – dan hervul hy na Donderdag se terugkeer.</p> <p>With the full tank he only needs to travel Friday return trip / HyrydanslegsVrydagheen-en-weer ✓ A Friday trip: $49 \times 2 = 98$ miles / myl</p> <p>$= \frac{98}{18} = 5,44$ gallons/ gelling ✓ MA ✓ CA Left in a tank is $23 - 5,44 = 17,56$ gallons. ✓ MA ✓ CA Daar is $23 - 5,44 = 17,56$ gelling in die tenk oor</p>	<p>1A travel distance</p> <p>1RT trip distance</p> <p>1MA dividing</p> <p>1CA number of trips</p> <p>1MA dividing 1CA simplification</p> <p>1MA subtracting 1CA simplification</p> <p>OR/OF 1RT trip distance</p> <p>1MA weekly miles</p> <p>1MA multiply</p> <p>1A travel distance</p> <p>1MA dividing 1CA usage on last day</p> <p>1MA subtracting 1CA diff. between capacity and used gallons</p>	M L3

Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
	<p>18 miles on 1 gallon / 18 myl op 1 gelling</p> <p>✓ RT 49 miles on x gallon / 49 myl op x gelling</p> <p>$x = \frac{48}{18} = 2,722\ldots$ gallon per trip / gelling per rit ✓ MA ✓ A</p> <p>Number of trips on 1st full tank / Getalritte met 1st voltenk</p> <p>$= \frac{23}{2,722\ldots} = 8,44\ldots$ ✓ CA</p> <p>∴ 8 trips before he fills up again / 8 rittevoorhyweervolmaak</p> <p>∴ 2 trips with second full tank/ 2 ritte met die 2de voltenk</p> <p>Fuel used / Brandstofverbruik</p> <p>✓ MA ✓ CA $= 2,722\ldots \times 2 = 5,44\ldots$ gallon / gelling</p> <p>Left in the tank / Oor in die tenk</p> <p>✓ MA ✓ CA $= 23 - 5,44\ldots = 17,56$ gallon / gelling.</p> <p style="text-align: center;">OR/OF</p> <p>Single Trip/Enkelrit = 49 miles /myl ✓ RT</p> <p>Number of gallons for 1 trip/ Getal gelling vir 1 rit</p> <p>✓ MA $= 49 \div 18 = 2,72$ ✓ A</p> <p>Number of gallons for return trip/ virretoerrit</p> <p>$= 2,72 \times 2 = 5,44$ ✓ CA</p> <p>23 gallons/gelling $\div 5,44 = 4,22$ days/dae ✓ MA ✓ CA</p> <p>≈ 4 days/dae</p> <p>No of gallons left / Hoeveelheid gelling oor</p> <p>✓ MA ✓ CA $= 23 - 5,44 = 17,56$ gallons</p> <p style="text-align: center;">OR/OF</p>	<p>1RT trip distance 1MA dividing 1A travel distance</p> <p>1CA number of trips</p> <p>1MA multiplying 1CA simplification</p> <p>1MA subtracting 1CA simplification</p> <p style="text-align: center;">OR/OF</p> <p>1RT trip distance</p> <p>1MA dividing 1A travel distance</p> <p>1CA number of trips 1MA dividing 1CA simplification</p> <p>1MA subtracting 1CA simplification</p> <p style="text-align: center;">OR/OF</p>	

Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
	<div><div><div>$23 \times 18 = 414 \text{ miles/myl}$ ✓A</div><div>$\checkmark \text{ RT}$ $\checkmark \text{ MA}$</div><div>Monday/Maandag : $49 \times 2 = 98 \text{ miles/myl}$</div><div>Tuesday/Dinsdag : 98 miles/myl</div><div>Wednesday/Woensdag: 98 miles/myl</div><div>Thursday/ Donderdag 98 miles/myl</div><div>Totaal = 392 miles/myl ✓CA</div><div>Fill up the tank on Thursday / <i>Maak die tenk vol petrol op Donderdag</i></div></div><div><div>Used per day /<i>Gebruik per dag</i></div><div>$\checkmark \text{ MA}$ $\checkmark \text{ CA}$</div><div>$= 98 \div 18 = 5,44 \text{ gallons}$</div><div>Petrol left in tank/<i>Petrol oor in tenk</i></div><div>$= 23 - 5,44$ ✓ MA</div><div>$\checkmark \text{ CA}$</div><div>$= 17,56 \text{ gallons}$</div></div><div><div>Miles that can be travelled after Friday/<i>Myle wat nog gereis kan word na Vrydag</i></div><div>$= 414 - 98$</div><div>$= 316 \text{ miles/myl}$</div><div>Petrol left in tank/<i>Petrol oor in tenk</i> $= 316 \div 18$</div><div>$= 17,56 \text{ gallons}$</div></div></div>	<div>1A travel distance</div> <div>1RT trip distance</div> <div>1MA multiplying</div> <div>1CA number of trips</div> <div>1MA dividing</div> <div>1CA simplification</div> <div>1MA subtracting</div> <div>1CA simplification</div> <div>(8)</div>	
5.2	<div><div><div>$^{\circ}\text{C} = \frac{5}{9} (^{\circ}\text{F} - 32)$</div><div>$-7 = \frac{5}{9} (^{\circ}\text{F} - 32)$ ✓ SF</div><div>$^{\circ}\text{F} = \frac{9}{5} \times -7 + 32$ ✓ S</div><div>$= 19,4$ ✓ CA</div><div>$\approx 20^{\circ}\text{F}$ ✓ R</div></div><div><div>Or/of</div><div>$^{\circ}\text{F} = -7 \div \frac{5}{9} + 32$</div><div>$= 19,4^{\circ}\text{C}$</div><div>$\approx 20^{\circ}\text{C}$</div></div></div>	<div>1SF substitution</div> <div>1S simplification</div> <div>1CA simplification</div> <div>1R rounding</div> <div>(4)</div>	M L2
		[29]	
	TOTAL/TOTAAL: 150		