



# basic education

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**

<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</b>	Reading from a table/graph/map/diagram/ <i>Lees vanaftabel/kaart/grafiek/diagram</i>
<b>SF</b>	Correct substitution in a formula/ <i>Korrekte vervanging in formule</i>
<b>O</b>	Opinion/Explanation/Reasoning / <i>Opinie/Verduideliking/Redenasie</i>
<b>P</b>	Penalty, e.g. for no units, incorrect rounding off, etc./ <i>Penalising, bv. vir geen eenhede/verkeerde afronding, ens.</i>
<b>R</b>	Rounding off/ <i>Afronding</i>
<b>NPR</b>	No penalty for correct rounding minimum two decimal places/ <i>Geenpenalisingvir korrekte afronding tot twee desimale plekke nie</i>
<b>AO</b>	Answer only/ <i>Slegs antwoord</i>
<b>MCA</b>	Method with constant accuracy/ <i>Metode met volgehoue akkuraatheid</i>

**These marking guidelines consist of 19 pages.  
Hierdienasienriglyne bestaan uit 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/Oplissing	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: $\text{mm}^3$ ]  (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 <b>NPR</b> (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*	$\checkmark$ A A layout plan is a top view that shows the arrangement of features. $\checkmark$ A <i>'n Uitlegplan is die bo-aansig wat die rangskikking van die voorwerpe aantoon.</i> <b>OR/OF</b> A layout plan is the structural arrangement of items within a certain space. <i>'n Uitlegplan is die strukturele rangskikking van items binne 'n bepaalde ruimte.</i> <b>OR/OF</b> Plan of the entire inside cabin, showing location of seats, exit doors etc. <i>'n Plan van die hele binnekant van die kajuut wat die posisie van sitplekke, uitgang, deure ens. aantoon</i> <b>OR/OF</b> Drawing to scale showing physical arrangements of all resources that consume space within facilities. <i>'n Skaaltekening wat die fisiese posisies van al die items van spasie in beslag neem binne die fasiliteit</i>	2Aexplanation (2)	MP L1

<b>Q/V</b>	<b>Solution/Oplossing</b>	<b>Explanation/Verduideliking</b>	<b>T/L</b>
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
		<b>[29]</b>	

<b>QUESTION/VRAAG 2 [24MARKS/PUNTE]</b>			
<b>Q/V</b>	<b>Solution/Oplissing</b>	<b>Explanation/Verduideliking</b>	<b>T/L</b>
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*	$P_{\text{not interior/nie binne}} = P_{\text{exterior/buite}}$ $= \frac{2}{6} \quad \checkmark\checkmark\text{RT}$ $= \frac{1}{3} \quad \checkmark\text{A}$ <p style="text-align: center;"><b>OR/OF</b></p> $P_{\text{not interior/nie binne}} = 1 - \frac{4}{6} \quad \checkmark\text{MA}$ $= \frac{2}{6} \quad \checkmark\text{RT}$ $= \frac{1}{3} \quad \checkmark\text{A}$	2RT numerator 1A denominator  1CA simplification  <p style="text-align: center;"><b>OR/OF</b></p> 1MA probability of NOT 1RT numerator 1A denominator  1CA simplification  (4)	P L2
2.5	$\checkmark\text{A}$ 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>	$\checkmark\checkmark\text{O}$ 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. $\checkmark\checkmark\text{O}$ <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;"><b>OR/OF</b></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;"><b>OR/OF</b></p>	2O reason	MP L4

Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
	<p style="text-align: center;"><b>OR/OF</b></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 style="text-align: center;"><b>OR/OF</b></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 style="text-align: center;"><b>OR/OF</b></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 style="text-align: center;"><b>OR/OF</b></p> <p>The drawing represents the front view. <i>Die prent is die vooraansig</i></p> <p style="text-align: center;"><b>OR/OF</b></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)
2.7.1*	$10 \text{ mm} : 1\,000 \text{ mm} \quad \checkmark A$ $= 1 : 100 \quad \checkmark CA$ <p style="text-align: center;"><b>OR/OF</b></p> $1 \text{ cm} : 100 \text{ cm} \quad \checkmark A$ $= 1 : 100 \quad \checkmark CA$	1A correct ratio and conversion 1CA simplification <p style="text-align: center;"><b>OR/OF</b></p> 1A correct ratio and conversion 1CA simplification <b>AO</b>	MP L2  (2)
2.7.2	$\checkmark A$ Length on floor plan/ <i>Lengte op die vloerplan</i> = 4,4 cm  $1 \text{ cm} = 100 \text{ cm}$ $4,4 \text{ cm} = 4,4 \times 100 \text{ cm} \quad \checkmark MCA$ $= 440 \text{ cm} \quad \checkmark CA$ $= 4,4 \text{ m} \quad \checkmark C$ <p style="text-align: center;"><b>OR/OF</b></p>	CA from 2.7.1 1A correct measurement  1MCA using the scale 1CA simplification 1C conversion Accept 4,3 m to 4,5 m	MP L3

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
	<p>1 cm is 1 000 mm  <math>\checkmark</math>A            4,4 cm is 4 400 mm <math>\checkmark</math>MCA <math>\checkmark</math>CA            4 400 mm = 4,4 m <math>\checkmark</math>C</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>1cm : 1 000 mm <math>\checkmark</math>MCA            1cm : 1 m <math>\checkmark</math>C  <math>\checkmark</math>A            4,4 cm : 4,4 m <math>\checkmark</math>CA</p>	<p>1A correct measurement            1MCA using the scale            1CA simplification            1C conversion</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>1MCA using the scale            1C conversion            1A correct measurement            1CA simplification</p> <p style="text-align: right;">(4)</p>	
2.7.3	<p>Jan is correct. <math>\checkmark</math>A</p> <p style="text-align: center;"><math>\checkmark\checkmark</math>O</p> <p>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.</i>  <i>Wanneer jy 'n fotostaat maak, kan die grootte van die plan verander en die getalskaal bly dieselfde</i></p>	<p>1A opinion            2O verification</p> <p style="text-align: right;">(3)</p>	MP L4
		<b>[24]</b>	

QUESTION/VRAAG 3 [35 MARKS/PUNTE]			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
3.1.1	$\begin{aligned} & \checkmark\text{RT} & & \checkmark\text{MA} \\ \mathbf{A} &= 162 \text{ cm} + 1,5 \text{ cm} + 1,5 \text{ cm} \\ &= 162 \text{ cm} + (1,5 \text{ cm} \times 2) \\ &= 165 \text{ cm} & \checkmark\text{CA} \end{aligned}$	1RT inside length 1MA adding both sides  1CA simplification (3)	M L1
3.1.2*	$\begin{aligned} & \checkmark\text{RT} & & \checkmark\text{MA} \\ \mathbf{B} &= 80 \text{ cm} - (40 \text{ cm} + 4,5 \text{ cm} + 1,5 \text{ cm} + 1,5 \text{ cm}) \\ &= 32,5 \text{ cm} & \checkmark\text{CA} \end{aligned}$	1RT both heights 1MA subtracting 1CA simplification (3)	M L1
3.2	$\begin{aligned} 31,496 \text{ inches/duim} &= 80 \text{ cm} & \checkmark\text{RT} \\ 1 \text{ inch/duim} &= \frac{80}{31,496} \text{ cm} & \checkmark\text{MA} \\ &= 2,54 \text{ cm} & \checkmark\text{A} \end{aligned}$	1RTheight 80 cm  1MA dividing by 31,496  1A simplification (3)	M L2
3.3.1	$\begin{aligned} \text{Area of a rectangle} &= \text{length} \times \text{width} \\ \text{Opp van 'n reghoek} &= \text{lengte} \times \text{breedte} \\ &= 165 \text{ cm} \times 80 \text{ cm} & \checkmark\text{MCA} \\ &= 13\,200 \text{ cm}^2 & \checkmark\text{CA} \end{aligned}$	CA from 3.1.1  1MCA substitution  1CA simplification (2)	M L2
3.3.2*	$\begin{aligned} \text{Area of a rectangle} &= 13\,200 \text{ cm}^2 \\ &= \frac{13200}{(100)^2} \text{ m}^2 & \checkmark\text{MCA} \\ &= 1,32 \text{ m}^2 & \checkmark\text{CA} \end{aligned}$ <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-left: 20px;"> <math display="block">\begin{aligned} \text{or Area} &amp;= 1,65 \times 0,8 \\ &amp;= 1,32 \text{ m}^2 \end{aligned}</math> </div>	CA from 3.3.1  1MCA dividing by $100^2$ or 10 000 1CA simplification AO (2)	M L2
3.3.3	$\begin{aligned} 1 \ell \text{ covers/bedek} & 6,9 \text{ m}^2 \\ n \ell \text{ covers/bedek} & 1,32 \text{ m}^2 \\ n &= \frac{1,32}{6,9} & \checkmark\text{MA} \\ &= 0,1913... \ell & \checkmark\text{CA} \end{aligned}$ <p>To paint three coats/ Om drie lae te verf</p> $\begin{aligned} & \checkmark\text{MA} \\ 0,1913... \ell \times 3 &= 0,57 \ell & \checkmark\text{CA} \\ & \checkmark\text{R} \end{aligned}$	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;"><b>OR/OF</b></p> <p>Total area to cover / <i>Totale oppervlakte om te dek</i>  <math>\checkmark</math>MA  <math>= 1,32 \text{ m}^2 \times 3 = 3,96 \text{ m}^2</math> <math>\checkmark</math>CA</p> <p>1 ℓ covers/<i>bedek</i> <math>6,9 \text{ m}^2</math>  <math>x</math> ℓ covers /<i>bedek</i> <math>3,96 \text{ m}^2</math></p> $x = \frac{3,96}{6,9} = 0,57 \text{ ℓ}$ $\checkmark$ MA $\checkmark$ CA $\checkmark$ R <p style="text-align: center;"><b>OR/OF</b></p> <p>Paint needed/<i>Verf benodig</i>  <math>\checkmark</math>MA  <math>= \frac{1,32 \times 2}{6,9} \text{ ℓ} + \frac{1,32}{6,9} \text{ ℓ}</math> <math>\checkmark</math>MA  <math>= 0,38 \text{ ℓ} + 0,19 \text{ ℓ}</math> <math>\checkmark</math>CA <math>\checkmark</math>CA  <math>= 0,57 \text{ ℓ}</math> <math>\checkmark</math>R</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>Total area to cover / <i>Totale oppervlakte om te dek</i>  <math>\checkmark</math>MA <math>\checkmark</math>CA  <math>= 1,32 \text{ m}^2 \times 3 = 3,96 \text{ m}^2</math></p> <p>Spread rate/ <i>Spreikoers</i> = <math>\frac{1 \text{ ℓ}}{6,9 \text{ m}^2}</math> <math>\checkmark</math>MA  <math>= 0,144... \text{ ℓ/m}^2</math></p> <p>Total amount of litres / <i>Totale aantal liters</i>  <math>= 0,144 \times 3,96</math> <math>\checkmark</math>CA  <math>= 0,57 \text{ ℓ}</math> <math>\checkmark</math>R</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>Spread rate/ <i>Spreikoers</i> = <math>\frac{1 \text{ ℓ}}{6,9 \text{ m}^2}</math> <math>\checkmark</math>MA  <math>= 0,144... \text{ ℓ/m}^2</math></p> <p>Paint needed for 1 coat/ <i>Verf nodig vir 1 laag</i>  <math>= 0,144 \times 1,32 = 0,19... \text{ ℓ}</math> <math>\checkmark</math>CA</p> <p>Paint needed for 3 coats/ <i>Verf nodig vir 3 lae</i>  <math>\checkmark</math>MA  <math>= 0,19... \times 3</math> <math>\checkmark</math>CA  <math>= 0,57 \text{ ℓ}</math> <math>\checkmark</math>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;"><b>OR/OF</b></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;"><b>OR/OF</b></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;"><b>OR/OF</b></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	$0,57 \text{ ℓ} \times 1\,000$ $\checkmark$ MCA $= 570 \text{ ml}$ $\checkmark$ CA <p>Not valid <math>\checkmark</math>O  <i>Nie geldig nie</i></p>	<p>1MCA (from Q3.3.3 multiply by 1 000) 1CA simplification</p> <p>1O verification</p>	M L4

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

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> <span style="float:right"><math>\checkmark\checkmark\text{O}</math></span></p> <p style="text-align:center"><b>OR/OF</b></p> <p>Files stand up straight/<i>Die lêers staan regop</i></p> <p style="text-align:center"><b>OR/OF</b></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"><b>OR/OF</b></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"><b>OR/OF</b></p> <p>To categorise /organise her files/<i>Dit is om haar lêers te katagoriseer /organiseer</i></p> <p style="text-align:center"><b>OR/OF</b></p> <p>Prevent files from breaking/ damage/protect files <i>Verhoed dat lêers breek of beskadig/beskerm lêers</i></p>	<p>20 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
		<b>[35]</b>	

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

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
4.2	$\text{Volume} = 3,142 \times r^2 \times \text{height/hoogte}$ $\checkmark\text{SF}$ $5000 \ell = 3,142 \times r^2 \times 220 \text{ cm}$ $\checkmark\text{C}$ $5000\ 000 = 691,24 \times r^2$ $\frac{5\ 000\ 000}{691,24} = r^2 \quad \checkmark\text{M}$ $7233,377698 = r^2 \quad \checkmark\text{S}$ $\sqrt{7233,377698} = r \quad \checkmark\text{M}$ $85,05 \text{ cm} = r \quad \checkmark\text{CA}$	<p>1SF substituting 5000</p> <p>1C converting <math>\ell</math> to <math>\text{cm}^3</math></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*	$18 : 42 \quad \checkmark\text{A}$ $= 3 : 7 \quad \checkmark\text{CA}$	<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	$\text{Height/hoogte} = \frac{42''}{12''} = 3,5 \text{ feet/voet} \quad \checkmark\text{MA}$ $3,28084 \text{ feet/voet} = 1\ 000 \text{ mm}$ $\therefore 3,5 \text{ feet/voet} = \frac{3,5}{3,28084} \times 1\ 000 \quad \checkmark\text{C}$ $= 1\ 066,799\dots \text{mm} \quad \checkmark\text{CA}$ <p style="text-align: center;"><b>OR/OF</b></p> $3,28084 \text{ feet} = 1\ 000 \text{ mm}$ $1 \text{ foot} = n \quad \checkmark\text{MA}$ $n = 304,79999 \text{ mm}$ $1 \text{ foot} = 12 \text{ inches}$ $\text{Then } 12 \text{ inches} = 304,79999 \text{ mm}$ $1 \text{ inch} = \frac{304,79999 \text{ mm}}{12} \quad \checkmark\text{C}$ $= 25,39999 \text{ mm}$ $\text{Therefore } 42 \text{ inches} = 42 \times 25,39999 \text{ mm}$ $= 1066,7999 \text{ mm}$ $= 1\ 066,8 \text{ mm} \quad \checkmark\text{CA}$	<p>1MA converting to feet</p> <p>1C converting to mm</p> <p>1CA simplification</p> <p style="text-align: center;"><b>OR/OF</b></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</i> <i>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> $= 3,785 \times 23 \quad \checkmark C$ $= 87,055 \text{ litre} \quad \checkmark S$ <p>Cost of 87,055 litre/ <i>Prys vir 87,055 liter</i></p> $= 87,055 \times R15,97$ $= R1\ 390,27 \quad \checkmark CA$ <p>Valid/ <i>Geldig.</i> <math>\checkmark O</math></p> <p style="text-align: center;"><b>OR/OF</b></p> <p>Number of litres / <i>Getal liter</i></p> $= \frac{R1400}{R\ 15,97}$ $= 87,664.. \text{ litre} \quad \checkmark S$ <p>Number of gallons / <i>Getal gellings</i></p> $= \frac{87,664}{3,785} \quad \checkmark C$ $= 23,16 \text{ gallons} \quad \checkmark CA$ <p>Can buy more with R1 400/<i>Kan meer koop met R 1400</i></p> <p>Valid / <i>Geldig</i> <math>\checkmark O</math></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;"><b>OR/OF</b></p> <p>1S simplification</p> <p>1C gallons to litre</p> <p>1CA cost of fuel</p> <p>1O conclusion</p> <p><b>NPR</b></p>	<p>MF L4</p> <p style="text-align: right;">(4)</p>



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 = <math>23 \times 18 = 414</math> miles</p> <p>Distance/afstand ✓ RT Greenfield - Fitchburg = 49 miles/myl Number of trips on 1 full tank /Getalritte met 1 voltenk</p> $= \frac{414}{49} = 8,448..$ <p>✓ CA ∴ 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/ brandstofvir 1 heen-en-weer reis</p> $= \frac{98}{18} = 5,44 \text{ gallon}$ <p>✓ CA ✓ CA Left in a tank is <math>23 - 5,44 = 17,56</math> gallons. Oor in die tenk is <math>23 - 5,44 = 17,56</math> gelling</p> <p style="text-align: center;"><b>OR/OF</b> ✓ RT</p> <p>Distance/afstand<sub>(Greenfield and Fitchburg)</sub> = 49 miles/myl</p> <p>Weekly must travel/ moet weekliks ry = <math>5 \times 2 = 10</math> trips ✓ MA</p> <p>He can travel = <math>23 \times 18 = 414</math> miles with a full tank. Hy kan 414 myl ry met 'n vol tenk, 8 trips is <math>49 \times 8 = 392</math> 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 / Hyrydanslegs Vrydag heen-en-weer Friday trip: <math>49 \times 2 = 98</math> miles / myl</p> $\frac{98}{18} = 5,44 \text{ gallons/ gelling}$ <p>Left in a tank is <math>23 - 5,44 = 17,56</math> gallons. Daar is <math>23 - 5,44 = 17,56</math> 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 style="text-align: center;"><b>OR/OF</b></p> <p>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>	<p>M L3</p>

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 <math>x</math> gallon / 49 myl op <math>x</math> gelling</p> <p><math>x = \frac{48}{18} = 2,722\dots</math> gallon per trip / gelling per rit</p> <p>Number of trips on 1<sup>st</sup> full tank / Getalritte met 1<sup>st</sup> voltenk</p> <p><math>= \frac{23}{2,722\dots} = 8,44\dots</math> ✓ 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 <math>= 2,722\dots \times 2 = 5,44\dots</math> gallon / gelling</p> <p>Left in the tank / Oor in die tenk</p> <p>✓ MA ✓ CA <math>= 23 - 5,44\dots = 17,56</math> gallon / gelling.</p> <p style="text-align: center;"><b>OR/OF</b></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 ✓ A <math>= 49 \div 18 = 2,72</math></p> <p>Number of gallons for return trip/ virretoerit</p> <p><math>= 2,72 \times 2 = 5,44</math> ✓ CA</p> <p>23 gallons/gelling <math>\div 5,44 = 4,22</math> days/dae</p> <p style="text-align: center;"><math>\approx 4</math> days/dae</p> <p>No of gallons left / Hoeveelheid gelling oor</p> <p>✓ MA ✓ CA <math>= 23 - 5,44 = 17,56</math> gallons</p> <p style="text-align: center;"><b>OR/OF</b></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;"><b>OR/OF</b></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;"><b>OR/OF</b></p>	

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