basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS/
SENIORSERTIFIKAAT-EKSAMEN
NATIONAL SENIOR CERTIFICATE EXAMINATIONS/
NASIONALE SENIORSERTIFIKAAT-EKSAMEN

MATHEMATICAL LITERACY P2/
WISKUNDIGE GELETTERDHEID V2

MARKING GUIDELINES/*NASIENRIGLYNE*

2019

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/a graph/document/diagram/*Lees vanaf tabel/grafiek/diagram*
SF	Correct substitution in a formula/*Korrekte vervanging in formule*
O	Opinion/Explanation/*Opinie/Verduideliking*
P	Penalty, e.g. for no units, incorrect rounding off, etc./*Penalisasie, bv. vir geen eenhede/verkeerde afronding, ens.*
R	Rounding off/*Afronding*
NPR	No penalty for rounding/*Geen penalisasie vir afronding nie*
AO	Answer only/*Slegs antwoord*
MCA	Method with constant accuracy/*Metode met volgehoue akkuraatheid*

These marking guidelines consist of 20 pages.
Hierdie nasienriglyne bestaan uit 20 bladsye.

NOTE:
- If a candidate answers a question TWICE, mark only 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.
- No CA mark follows after 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.

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.*
- *Geen CA-punt volg na 'n afbreking nie.*
- *Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra item.*

QUESTION/*VRAAG* 1 [28 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
1.1.1	$A = \frac{750}{50}$ ✓ MA ✓ A = 15 occupants/*bewoners* B = 2 500 × 30 ✓MA = 75 000 ✓A **OR/*OF*** Using ratios A : 22 500 8 : 12 000 ✓ M ✓ A $A = \frac{8 \times 22\,500}{12\,000} = 15$ **or/*of*** $A = \frac{22\,500}{1\,500} = 15$ 50 : B 1 : 1 500 B = 1 500 × 50 ✓ M = 75 000 ✓ A	1MA dividing by 50 1A occupants 1MA multiplying 1A litres **OR** 1M dividing and multiplying 1A occupants 1M multiplying 1A litres **AO** (4)	D L2

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
1.1.2	Number of days/*Aantal dae* $= \frac{1500}{50}$ ✓MA $= 30$ ✓A But July has 31 days/*Maar Julie het 31 dae* ✓O His statement is NOT valid./*Sy bewering is NIE geldig nie.* **OR/*OF*** Number of days in July 31 ✓A 1 500 × 31 = 46 500 ✓M or 50 ×31 = 1 550 Not valid since it is not the same values /*Nie geldig nie want die waardes verskil* ✓O **OR/*OF*** July has 31 days ✓A 1500 ÷ 31 ✓M = 48,39 ℓ */pp* 48,39 < 50 Not valid / *Nie geldig nie* [using any of maximum litres/month or maximum litres/day] ✓O	1MA dividing correct pair 1A number of days 1O verification **OR/*OF*** 1A number of days 1M multiply 1O verification **OR/*OF*** 1 A days in July 1M dividing 1O verification (3)	M L4
1.1.3 (a)	Total occupants/*Totale bewoners* = 2 + 4 + 2 + 2 = 10 ✓MA Volume of water allowed/*Volume water toegelaat* = (10 × 50) × 31 ✓MCA ✓M = 15 500 ℓ ✓CA Extra/*Ekstra* = 20% × 15 500 = 3 100 ℓ ✓CA Total volume/*Totale volume* = 15 500 + 3 100 ✓CA = 18 600 ℓ = 18,6 kℓ ✓C	1MA no. of occupants 1MCA 500 1M multiplying by 31 1CA no. of litres 1CA calculating 20% 1CA Adding litres 1C Converting to kilolitres (7)	M L3

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
	OR/*OF* Total occupants/*Totale bewoners* = 2 + 4 + 2 + 2 = 10 ✓MA Volume of water allowed per day *Volume water toegelaat per dag* = 50 × 10 = 500 ℓ ✓MCA Extra/*Ekstra* = 20% × 500 = 100 ℓ ✓CA Total volume per day/*Totale volume per dag* = 500 + 100 = 600 ℓ ✓CA Total volume for May/*Totale volume vir Mei* = 600 × 31 ✓M = 18 600 ℓ ✓CA = 18,6 kℓ ✓C **OR/*OF*** Total occupants/ *Totale bewoners* = 2 + 4 + 2 + 2 = 10 ✓MA Increased quota per day / *Verhoogde kwota per dag* ✓CA = 50 + 20% × 50 = 60 ✓CA Maximum consumption / *maksimum verbruik* ✓CA ✓M ✓CA = 60 × 10 × 31 = 18 600 ℓ =18,6 k ℓ ✓C	1MA no. of occupants 1MCA 500 1CA calculating 20% 1CA Adding litres 1M multiplying by 31 1CA no. of litres 1C Converting to kilolitres **OR/*OF*** 1MA no. of occupants 1CA calculating 20% 1CA Adding litres 1CA 600 1M multiplying by 31 1CA no. of litres 1C Converting to kilolitres (7)	
1.1.3 (b)	Amount payable/*Bedrag betaalbaar* ✓MA First 6 kℓ = 6 × R29,93 = R179,58 ✓CA ✓M Next 4,5 kℓ= 4,5 × R52,44 = R235,98 ✓M Next 4,8 kℓ = 4,8 × R114,00 = R547,20 ✓M Total amount/*Totale bedrag* = R179,58 + R235,98 + R547,20 = R962,76 ✓CA	1MA multiplying by rate 1CA correct answer 1M same correct column calculation 1M same correct column calculation 1M adding 1CA total (6)	F L3

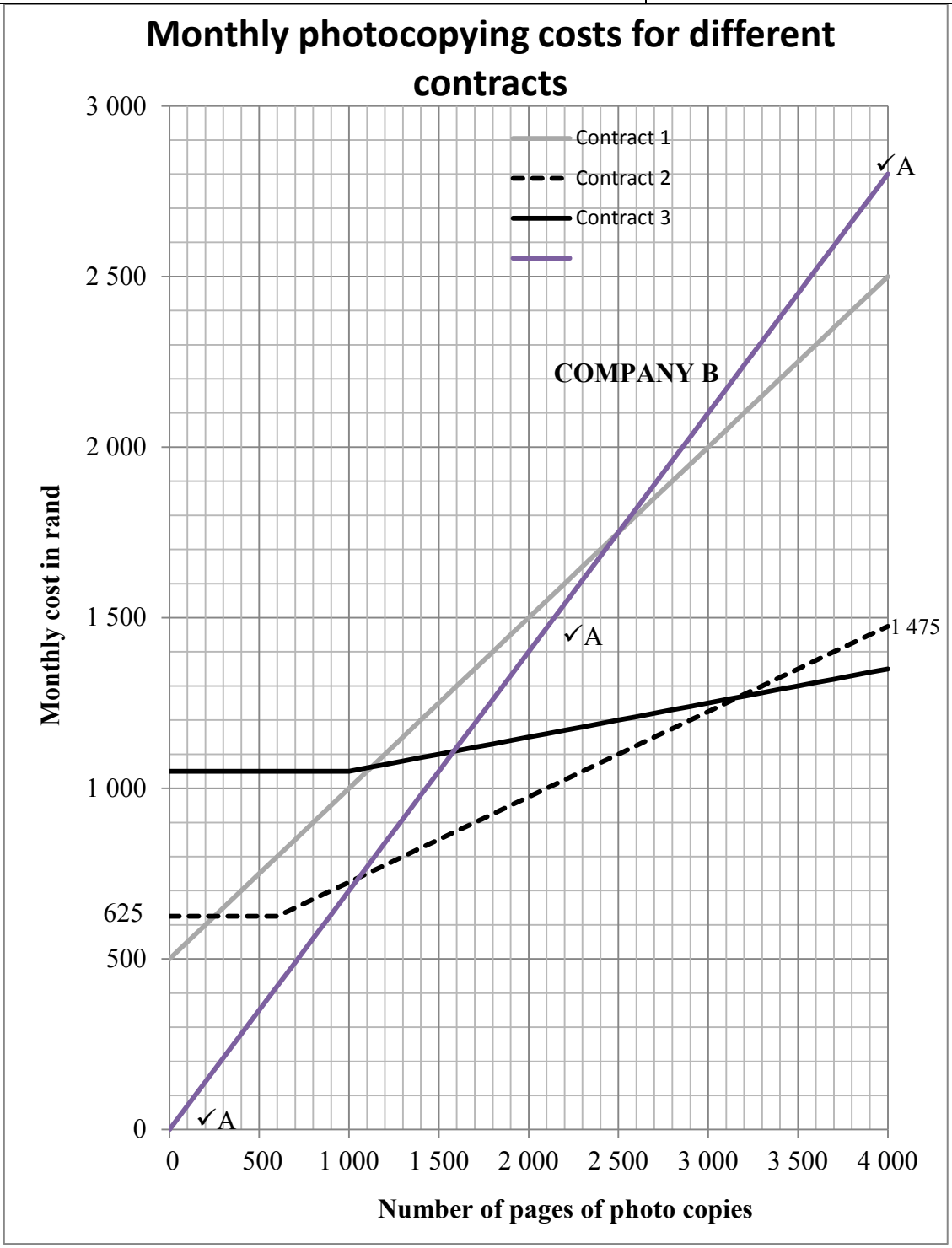
Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
1.1.3 (c)	Accept one of the following applicable reasons • Close taps while brushing your teeth/washing your hands • Rather take a shower than bath • Fix leaking taps, pipes etc. • Use grey water (bath or washing machine water) in the garden or to flush the toilet • Do not fill your swimming pool ✓✓O • Reduce the Capacity of the flush tank of toilet cistern • Water garden once a week • Use buckets to wash car • Install a tank or borehole *Aanvaar een van die volgende toepaslike redes* • *Maak krane toe terwyl jy tande borsel/hande was* • *Stort eerder as bad* • *Maak lekkende krane, pype ens. reg* • *Gebruik grys water(bad- of wasmasjienwater) in die tuin of om die toilet te spoel* • *Moenie swembad volmaak nie* • *Verminder die kapasiteit van die spoelbak van die toilet* • *Maak tuin slegs een keer 'n week nat* • *Was die motor met 'n emmer* • *Installeer 'n tenk of boorgat* **OR/*OF*** **Accept any other relevant answer** ***Aanvaar ander toepaslike rede***	2O relevant answer (2)	M L2
1.2	✓R Labour day 1 = 6 hours × R129,99/h *Arbeid dag 1* = R779,94 ✓M Day 2/*Dag 2* = 2 hours × R129,99/h = R259,98 ✓CA Total/*Totaal* = R779,94+ R259,98 = R1 039,92 ✓CA Cost of installing the tank/*Koste om tenk te installeer* = R12 958,00 + R1 943,70 + R1 039,92 = R15 941,62 ✓CA Mr Vellem's budget is **NOT** enough ✓O *Mnr. Vellem se begroting is NIE genoeg nie.* **OR/*OF***	1R rounding 1M 1st day labour calculation 1CA 2nd day labour calculation 1CA Adding 2 day values 1CA total cost 1O verification **OR/*OF***	F L4

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
	✓R ✓CA Total labour = 6 hours + 2 hours = 8 hours ✓M Labour cost = 8 × R129,99 = R1 039,92 ✓CA Cost of installing the tank/*Koste om tenk te installeer* = R12 958,00 + R1 943,70 + R1 039,92 = R15 941,62 ✓CA Mr Vellem's budget is **NOT** enough ✓O *Mnr. Vellem se begroting is NIE genoeg nie* **OR/*OF*** ✓R ✓CA Total labour = 6 hours + 2 hours = 8 hours ✓M ✓CA Budget = R15 900 – R12 958,00 – R1 943,70 – R129,99 × 8 = – R41,62 ✓CA Mr Vellem's budget is **NOT** enough *Mnr. Vellem se begroting is NIE genoeg nie* ✓O	1R rounding 1CA total hours labour 1M labour calculation 1CA labour cost 1CA total cost 1O verification **OR/*OF*** 1R rounding 1CA total hours labour 1M subtracting from budget 1CA labour cost 1CA simplification 1O verification (6)	
		[28]	

QUESTION/*VRAAG* 2 [32 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
2.1.1 (a)	**NOTE: 2.1.1 IS NOT TO BE MARKED, MARKS WILL BE SCALED** ***LET WEL: 2.1.1 WORD NIE GEMERK, PUNTE SAL AANGEPAS WORD*** Total surface area/*Totale buite oppervlakte* $= 2(L \times W) + 2(L \times H) + 2(W \times H)$ ✓C $= 2(6{,}5 \times 6{,}5) + 2(6{,}5 \times 12{,}5) + 2(6{,}5 \times 12{,}5)\ cm^2$ ✓SF $= 2(42{,}5)\ cm^2 + 2(81{,}25)\ cm^2 + 2(81{,}25)\ cm^2$ ✓S $= 84{,}5\ cm^2 + 162{,}5\ cm^2 + 162{,}5\ cm^2$ $= 409{,}5\ cm^2$ ✓ CA	1C conversion 1SF substitution 1S simplification 1CA total area (4)	M L2
2.1.1 (b)	To appeal to young children. ✓✓O *Om die medisyne vir die kinders aantreklik te maak.* **OR/*OF*** To advertise the medicine/*Om die medisyne te adverteer* ✓✓O **OR/*OF*** To show it is for children/*Om aan te toon dat dit vir kinders is* ✓✓O **OR/*OF*** Accept any valid reason/*Aanvaar enige geldige rede*	2O reason (2)	M L4
2.1.2	radius = $\frac{2{,}52\ cm}{2} = 1{,}26\ cm$ ✓A 10 mℓ ✓SF $= 3{,}142 \times (1{,}26\ cm)^2 \times h$ $\frac{10 cm^3}{4{,}9882392 cm^2} = h$ ✓M 2,0047…m $= h$ ✓CA	1A radius 1SF substituting volume 1M changing the subject of the formula 1CA height **NPR** (4)	M L3
2.2	Number of boxes in one carton *Aantal bokse in een karton* $= 6 \times 8 \times 4$ ✓M $= 192$ ✓A Total number of boxes *Totale aantal bokse* $= 192 \times 5$ ✓M $= 960$ ✓A In each carton 1 layer has $6 \times 8 = 48$ boxes ✓ Each carton has 4 layers $48 \times 4 = 192$ boxes ✓ They ordered 5 cartons ✓ $192 \times 5 = 960$ boxes ✓ **OR/*OF*** Total number of boxes/*Totale aantal bokse* ✓M ✓M✓M $= 6 \times 8 \times 4 \times 5$ $= 960$ ✓A	1M multiplying 1A number per box 1M multiply 1A total **OR/*OF*** 1M multiplying 2 values 1M multiplying with 3rd value 1M multiplying with 4th value 1A total (4)	MP L2

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
2.3.1	Range = N – Lowest value ✓M *Omvang = N – laagste waarde* 4 527 = N – 612 ✓SF 4 527 + 612 = N ✓M 5 139 = N ✓CA	1M writing formula 1SF substitution 1M change the subject of the formula 1CA when 76 for unknown age is used (4)	D L2
2.3.2	612 , **1 280** , 2 221 **,** 3 051 , **3 429** , 5 139 ✓M Interquartile Range /*Interkwartiel omvang* ✓A ✓A = 3 429 – 1 280 ✓M = 2 149 ✓CA	**CA from 2.3.1** 1M arranging 1A Q1 1A Q3 1M subtraction 1CA Simplify (5)	D L3
2.3.3	Total/*Totaal* = 1 280 + 612 + 3 051 + 2 221 + 5 139 + 3 429 + 76 = 15 808 ✓MCA Percentage = $\frac{76}{15\,808}\times 100\%$ ✓RT ✓M = 0,48 ✓CA ≈ 0,5% It is correct, due to rounding. ✓O *Dit is korrek as gevolg van afronding.*	**CA from 2.3.1** 1MCA adding all values 1RT unknown age value 1M % calculation 1CA simplification 1O explanation (5)	D L4
2.3.4	Number hospitalised < 6 months *Aantal gehospitaliseer< 6 maande* = 1 280 × 44,2% ✓MA = 565,76 ✓A Number hospitalised 20+/*Aantal gehospitaliseer 20+* = 3 429 × 7,6% = 260,6 ✓A Difference/*Verskil* = 565,76 – 260,60 = 305,1 ≈ 305 ✓CA	 1MA % calculation 1A simplification 1A simplification 1CA difference NPR (4)	D L3
			[32]

QUESTION/*VRAAG* 3 [26 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
3.1.1	3 200 ✓✓ RT [**Accept values from 3 100 to 3 250** ***Aanvaar waardes van 3 100 tot 3 250***]	2RT number of copies (2)	F L2
3.1.2	Contract 2/*Kontrak 2* ✓✓ RT	2RT correct contract (2)	F L2
3.1.3	Total cost = fixed cost + cost per page ✓A ✓RT = R625 per month for the first 600 pages + ✓RT ✓M (R1 475 – R625) ÷ (4 000 – 600) per page more than 600 ✓CA = R625 for the first 600 pages + R0,25 per page extra *Totale koste = vaste koste + koste per bladsy* ✓A ✓RT *= R625 per maand vir die eerste 600 bladsye +* ✓RT ✓M *(R1 475 – R625) ÷ (4 000 – 600) per bladsy meer as 600* ✓CA *= R625 vir die eerste 600 bladsye + R0,25 per ekstra bladsy* **OR/*OF*** ✓M ✓RT ✓CA ✓A Total cost = R625 + R0,25 (n – 600) where n is the number of pages more than 600. ✓A	1A setting up the equation 1RT constant cost 1RT values from graph 1M calculating the increment per page 1CA cost per page extra **OR/*OF*** 1RT constant cost 1M calculating the increment per page 1CA cost per page extra 1A setting up the equation 1A explaining the unknown in the equation (5)	F L4

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
3.1.4	 1A Starting point **(0 copies ; R0,00 charge)**/*Beginpunt (0 kopieë ; R0,00 koste)* 1A end point **(4 000 ; 2 800)**/*Eindpunt (4 000 ; R2 800)* 1A connecting points with a straight line./*Verbind punte met reguit lyn.* (3)		F L2

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
3.2	The electrical lead is crossing the floor. ✓ A This can be dangerous since persons can step on it and perhaps unplug the copier which might damage the machine or ✓✓ O A person can trip over the lead and fall causing injury. *Die elektriese koord lê oor die vloer* *Dit kan gevaarlik wees aangesien persone daarop kan trap en veroorsaak dat dit uittrek wat die kopieerder kan beskadig of* *'n Persoon kan daaroor val en 'n besering veroorsaak.* **OR/*OF*** ✓ A Copier in the middle of the room takes up space, if it is against the wall the room is not so crowded ✓✓ O *Fotostaatmasjien is in die middel van die kamer en dit neem ruimte op, indien dit teen die muur van die kamer is, sal daar meer spasie wees* ✓ A **OR/*OF*** Not suitably placed. Directly facing the window, it can attract criminals ✓✓ O *Dit is nie op 'n geskikte plek nie. Direk voor die venster, dit kan skelms aanlok.* ✓ A **OR/*OF*** The copier is suitably placed since it can now be accessed from all sides. ✓✓ O *Die fotostaatmasjien staan op die regte plek vir toegang daartoe van alle kante.*	1A justification 2O reason (3)	MP L4
3.3.1	100% – 58,5 % = 41,5 % ✓M Length of truck on original picture *Lengte van vragmotor op die oorspronklike prent* $= \frac{76\,\text{mm}}{41{,}5\,\%}$ ✓M ≈ 183 mm Length of the real truck *Lengte van die werklike vragmotor* = 183 mm × 50 ✓M ✓S = 9156 mm = 9,156 m ✓C **OR/*OF***	1M subtraction from 100% 1M dividing the 76 mm with the percentage 1M Multiplying by 50 1S simplifying 1C conversion NPR (5)	M L3

Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
	Length /*Lengte* = 76 mm ×50 ✓S ✓M = 3 800 mm = 3,8 m ✓C 100% – 58,5 % = 41,5 % Length of real truck/ *Lengte van werklike vragmotor* $= \frac{3{,}8\text{ m}}{41{,}5\,\%}$ ✓M = 9,157 m ✓CA	1M Multiplying by 50 1S simplifying 1C conversion 1M dividing 3,8 m by the percentage 1CA real length (5)	
3.3.2	A$ 45 × 300 ✓M × R9,41564/A$ = R127 111,14 ✓C VAT/BTW = R127 111,14 × 15 % = R19 066,67 ✓CA Import duties/*Invoerbelasting* = R127 111,14 × 4,7% = R5 974,22 ✓CA Cost/*Koste* = R127 111,14 + R19 066,67 + R5 974,22 = R152 152,03 ✓CA NOT correct/*NIE korrek NIE* ✓O **OR/*OF*** Cost of 300 trucks /*Koste van 300 vragmotors* ✓M = A$ 45 × 300 = A$ 13 500 Rand value /*Rand waarde* = A$ 13 500 × R9,41564/A$ = R127 111,14 ✓C Total tax rate /*Totale belasting koers* = 15% + 4,7% = 19,7% ✓A Total taxes = R127 111,14 × 19,7% = R25 040,89 ✓CA ✓CA Cost/*Koste* = R127 111,14 + R25 040,89 = R152 152,03 NOT correct/*NIE korrek NIE* ✓O **OR/*OF***	1M multiplying by 300 1C conversion 1CA when 15% is used 1CA simplification 1CA adding all costs 1O verification **OR/*OF*** 1M multiplying by 300 1C conversion 1A total tax rate 1CA simplification 1CA adding all costs 1O verification **OR/*OF***	F L4

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
	✓M A$ 45 × 300 × R9,41564/A$ = R127 111,14 ✓C ✓A ✓M Cost /*Koste* = R127 111,14 × 119,7% = R152 152,03 ✓CA NOT correct/*NIE korrek NIE* ✓O **OR/*OF*** $\frac{159778,70}{300}$ ✓M = *R*532,5956667 $\frac{100}{119,7} \times \frac{532,5956667}{1}$ ✓A ✓M = *R*444,9420774 ✓S $\frac{444,9420774}{9,41564}$ ✓C = *A*$47,26 A$45<A$47,26 NOT correct /*Nie korrek nie* ✓O	1M multiplying by 300 1C conversion 1A using total tax rate 1M multiplying with total rate 1CA simplification 1O verification **OR/*OF*** 1M dividing by 300 1A total tax rate 1M dividing by 119,7% 1S simplification 1C conversion 1O verification NPR (6)	
		[26]	

QUESTION/*VRAAG* 4 [34 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
4.1.1	SW (South west/*Suidwes*) ✓✓ A	2A reading direction (2)	MP L2
4.1.2	✓✓ A Part or sections of the railway line are not seen from above. *'n Gedeelte van die treinspoor is nie sigbaar op die kaart* **OR/*OF*** The road stays continuous (whole) while the railway line is in sections. *Die pad is aaneenlopend (heel) terwyl die treinspoor in "stukkies" is.*	2A description (2)	MP L2
4.1.3	Toyota or 11 ✓✓ A	2A correct circle (2)	MP L2
4.1.4	✓ A ✓ A Proceed straight on Stateway Street until you turn right at ✓ A the City Council into Arrarat Street. Then proceed straight ✓ A ✓ A until Alma. Destination is on the left-hand side. *Ry reguit met Staatsweg totdat jy regs by die Stadsraad uitdraai in Arrarat . Gaan reguit voort tot in Alma. Die bestemming is aan die linkerkant.* **OR/*OF*** Continue (NW) along Stateway. ✓ A • At 1st circle (13) take 2nd exit along Stateway. ✓ A • At 2nd circle (Smith)(14) take 3rd exit to Arrarat St. ✓A • Continue in Arrarat passing further three circles ✓A ✓ A Bingo (10), Alfa(8) and Engen(4) (from each circle taking 2nd exit to NE). *Ry (NW) met Stateway* • *By die 1ste sirkel neem die 2de uitgang gaan voort in Stateway* • *By die 2de sirkel neem die 3de uitgang na Arraratstr.* • *Gaan voort in Arrarat verby drie sirkels Bingo, Alfa en Engen (by elke sirkel neem die 2de uitgang Noordoos)*	1A straight on Stateway 1A turn right 1A Arrarat 1A straight until Alma 1A destination on left-hand **OR/*OF*** 1A exit point 1A correct street 1A exit point 1A description 1A naming the circles (5)	MP L3

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
4.1.5	Distance between Alfa and Engen circles = 5mm ✓ A *Afstand tussen Alfa- en Engensirkels = 5mm* ∴ 5mm = 500m 1mm = 100m ✓ CA or 1: 100 000 ✓A Distance between circles 13 and 14 is 28 mm = 1,4 km *Afstand tussen sirkels 13 en 14 is 28 mm = 1,4 km* ∴ 28 mm = 1 400 m 1mm = 50m or 1 : 50 000 ✓ CA This map is NOT drawn to scale. ✓ O *Die kaart is nie volgens skaal geteken nie.* **4 – 7 for distance between Afla and Engen** **24 – 29 for distance between 13 and 14**	1A measuring given distance 1CA simplification or scale 1A measure distance 1CA simplification or scale 1O explanation (5)	MP L3
4.1.6	5 minutes = $\frac{5}{60}$ ≈ 0,083 hour ✓ C Distance = Speed × time 4 = speed × 5 min ✓ MA Speed/*Spoed* = $\frac{\text{Distance/ Afstand}}{\text{Time/ Tyd}} = \frac{4}{0{,}083}$ = 48 km/h ✓ CA The car's speed was within the speed limit. ✓ O *Die motor se spoed is minder as die spoedbeperking* **OR/*OF*** Speed/*Spoed* = 4 km ÷ 5 min ✓ MA = 0,8 km/min × 60 min/hour ✓ C = 48 km/h ✓ CA The car's speed was less than the limit. ✓ O *Die motor se spoed is minder as die spoedbeperking*	1C minutes to hours 1MA substituting 1CA Speed value 1O conclusion NPR **OR/*OF*** 1MA substituting 1C converting 1CA Speed value 1O conclusion (4)	M L4
4.1.7	P = $\frac{3}{20}$ ✓RT ✓RT = 0,15 ✓ S Valid/*Geldig* ✓O	1RT numerator 1RT denominator 1S simplification 1O conclusion (4)	P L4

Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
4.2.1	104 : 88 ✓RT ✓ A = 13 : 11 ✓ S	1RT correct values 1A correct order 1S simplification (3)	D L2
4.2.2	$\frac{203}{1\,724}$ ✓ RT ✓ RT = 0,11774942 ≈ 0,12 ✓CA	1RT numerator 1RT denominator 1CA simplification NPR (3)	P L2
4.2.3	Total NOT electrical repairs/*Totaal nie elektriese herstelwerk nie* = 1 + 206 + 103 = 310 ✓A $P_{(NOT)} = \frac{310}{368} \times 100\%$ ✓M ✓ RT ≈ 84% ✓CA **OR/*OF*** $P_{(electr)} = \frac{58}{368}$ ✓ RT $P_{(NOT)} = 1 - \frac{58}{368}$ $= \frac{310}{368} \times 100\%$ ✓A ✓M ≈ 84% ✓CA **OR/*OF*** $P_{(electr)} = \frac{58}{368} \times 100\%$ ✓ RT ≈ 16% ✓ M $P_{(NOT)} = 100\% - 16\%$ ✓A = 84 % ✓ CA	1A numerator 1RT denominator 1M multiplying with 100% 1CA rounded simplification **OR/*OF*** 1RT denominator 1A numerator 1M multiplying with 100% 1CA rounded simplification **OR/*OF*** 1RT denominator 1M multiplying with 100% 1A subtracting from 100% 1CA simplification (4)	P L3
		[34]	

QUESTION/*VRAAG* 5 [30 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
5.1.1	Motor claims/*Motor eise* ✓RT = R100 712 182 – (R18 513 071 + R15 498 565 + R7 339 724 + R6 463 292) ✓M =R100 712 182 – R47 814 652 = R52 897 530 ≈ R53 million/*miljoen* ✓CA **OR/*OF*** Motor claims/*Motoreise* ✓RT = 53% × R100 712 182 ✓M = R53 377 456 ≈ R53 million/*miljoen* ✓CA	1RT correct values 1M subtracting from the total 1CA rounded value **OR/*OF*** 1RT correct values 1M percentage calculation 1CA rounded value (3)	F L2
5.1.2	Total/*Totaal* 2016 × 60% = R59 438 533 ✓M Total/*Totaal* 2016 = R59 438 533 ÷ 60% ✓M = R99 064 221,67 ✓A ✓M Difference/*Verskil* = R99 064 221,67 – R87 101 354 = R11 962 867,67 ✓CA **OR/*OF*** **2016** 60% - R59 438 533 10% - R9 906 422,17 ✓M 16% - R15 850 275,47 7% - R6 934 495,52 × 2 ✓M **Total/*Total*** : R99 064 221,67 ✓A Difference/*Verskil* = R99 064 221,67 – R87 101 354 ✓M = R11 962 867,67✓CA	1M relating values 1M dividing 1A simplification 1M subtracting from 2017 value 1CA difference **OR/*OF*** 1M finding rand values 1M double the 7% value 1A simplification 1M subtracting from 2017 value 1CA difference (5)	F L3

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
5.1.3	Percentage difference $= \frac{\text{New value} - \text{Old value}}{\text{Old value}} \times 100\%$ ✓A *Persentasie verskil* $= \frac{\textit{Nuwe waarde} - \textit{Ou waarde}}{\textit{Ou waarde}} \times 100\%$ $= \frac{\text{R}11\,829\,111 - \text{R}15\,498\,565}{\text{R}15\,498\,565} \times 100\%$ ✓A ✓RT $= -23{,}676\ldots\%$ ✓CA $\approx -24\%$	1A concept of percentage difference 1M difference 1RT correct values 1CA percentage (4)	D L3
5.1.4 (a)	Percentage Household/*Persentasie Huishoudelik* $= \frac{7\,339\,724}{100\,712\,182} \times 100\%$ ✓RT ✓M $= 7{,}28782\ldots\%$ ✓A Percentage Other/*Persentasie Ander* $= \frac{6\,463\,292}{100\,712\,182} \times 100\% = 6{,}41758\ldots\%$ ✓A Her statement is valid; the percentage should be 6% if rounded down. ✓O *Haar stelling is geldig; die persentasie moet 6% wees indien dit afgerond word.* **OR/*OF*** Motor claims 2015 = 53% × R100 712 182 = R53 377 456 Total of the claims = R18 513 071 + R15 498 565 + R7 339 724 + R53 377 456 + R6 463 292 ✓RT = R101 192 108 Other % $= \frac{6\,463\,292}{101\,192\,108} \times 100\%$ ✓M = 6,38% ✓A Household % $= \frac{7\,339\,724}{101\,192\,108} \times 100\%$ = 7,25% ✓A Her statement is valid; the percentage should be 6% if rounded down. ✓O *Haar stelling is geldig; die persentasie moet 6% wees indien dit afgerond word.*	1RT correct values 1M multiplying with 100% 1A simplification 1A simplification 1O verification **OR/*OF*** 1RT correct values 1M multiplying with 100% 1A simplification 1A simplification 1O verification	D L4

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
	OR/*OF*	**OR/*OF***	
	Rand value of the sectors /*Randwaarde van die sektore* ✓RT = 7% × R100 712 182 ✓MA = R7 049 852,74 ✓A ✓ O Both household and other were supposed to be R7 049 852, but it is not. □ Her statement is valid ✓O	1RT correct values 1MA percentage calculation 1A simplification 1O explanation 1O verification (5)	
5.1.4 (b)	When subtracting the percentages of Commercial, Home owner, Household and motor from 100% Other will be 7% due to %values in a circle diagram. ✓✓O **OR** Percentages were rounded. *As die persentasies van Kommersieel, Huiseienaar, Huishoudelik en motor van 100% afgetrek word sal ander 7% wees a.g.v. %waardes in die sirkeldiagram.* ***OF** Persentasies is afgerond.*	2O reflecting (2)	D L4
5.1.5	Number of successful claims/*Aantal suksesvolle eise* = 14,0858% × 2 144 ✓MA ≈ 302 ✓A Average paid out/*Gemiddeld uitbetaal* $= \frac{\text{R11 829 111}}{302}$ ✓M = R39 169,24 ✓CA	1MA % calculation 1A simplification 1M dividing 1CA simplification (4)	F L3
5.1.6	The percentage of commercial claims went down from 2015 to 2016 but then again went up from 2016 to 2017. ✓A ✓A *Die persentasie van kommersiële eise het verminder van 2015 tot 2016 maar het weer vermeerder van 2016 tot 2017* *OR* From 2015 to 2017 the trend is it increased *Vanaf 2015 tot 2017 is die tendens dat dit vermeerder*	1A down 2016 1A up 2017 (2)	D L4
5.2	Number of days/*Aantal dae* = 21 (July/*Julie*) + 31 + 30 + 31 + 3 ✓MA = 116 ✓A It is not valid./*Dit is nie geldig nie.* ✓O **OR/*OF*** 131 days is more than 4 months It is not valid *131 dae is meer as 4 maande* *Dit is nie geldig nie*	1MA adding correct days 1A simplification 1O verification (3)	D L4

Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
5.3	Accept one of the following The insurance company believes the claim is not valid. They suspect it is a fraudulent claim. They don't believe the item was specified. Under insured / Unpaid premiums Too many claims to date ✓✓O Negligence on the side of the client *Die versekeringsmaatskappy glo dat die eis nie geldig is nie* *Hulle vermoed dat dit 'n oneerlike eis is.* *Hulle glo nie dat die item gespesifiseer is nie* *Onder verseker / Onbetaalde premies* *Te veel keer ge-eis tot datum* *Nalatigheid aan die kant van die eiser.* **OR/*OF*** Any other valid reason/*Enige ander geldige rede*	2O reason (2)	F L4
		[30]	