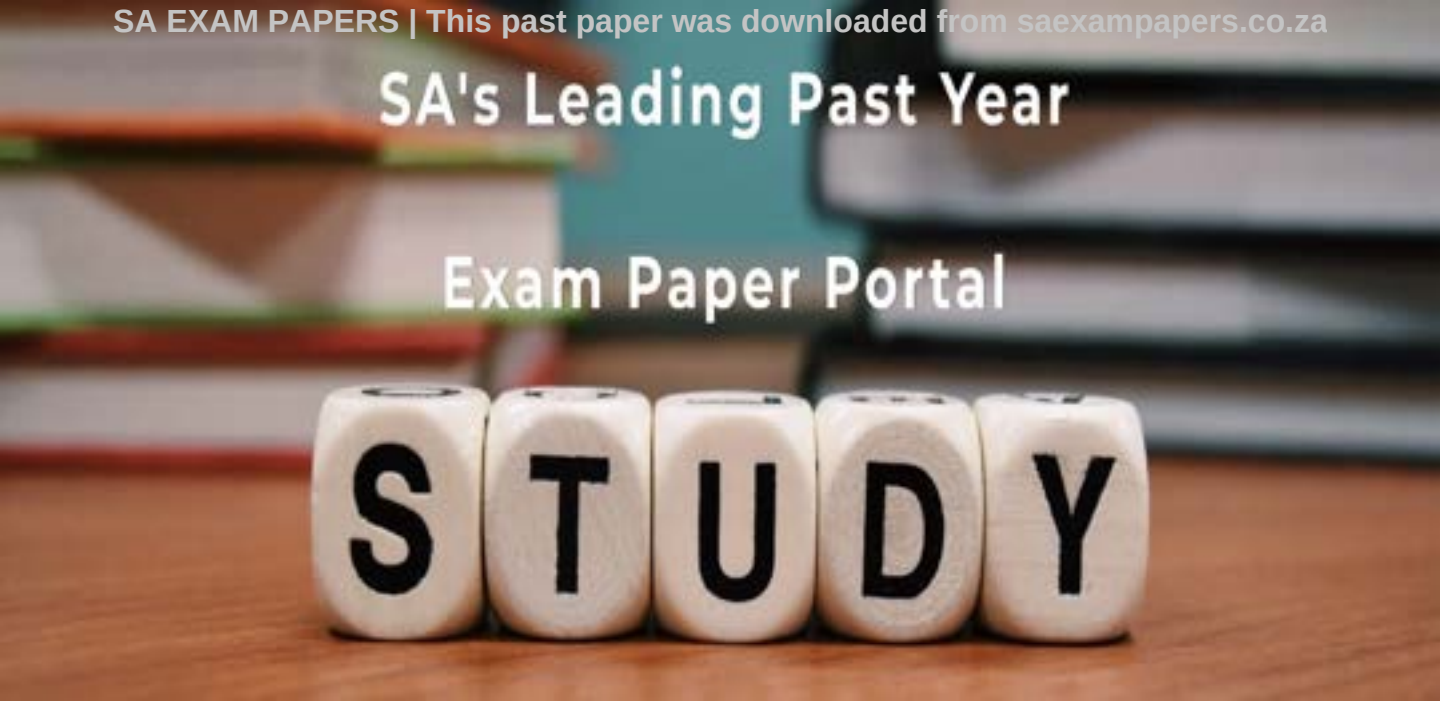

basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE/ *NASIONALE SENIOR SERTIFIKAAT*

GRADE/*GRAAD* 12

MATHEMATICAL LITERACY P1/ *WISKUNDIGE GELETTERDHEID V1*

NOVEMBER 2023

MARKING GUIDELINES/*NASIENRIGLYNE*

MARKS/*PUNTE*: 150

Symbol/*Kode*	Explanation/*Verduideliking*
MA	Method with accuracy/*Metode met akkuraatheid*
MCA	Method with consistent accuracy/*Metode met volgehoue akkuraatheid*
CA	Consistent accuracy/*Volgehoue akkuraatheid*
A	Accuracy/*Akkuraatheid*
C	Conversion/*Herleiding*
S	Simplification/*Vereenvoudiging*
RT	Reading from a table/graph/document/diagram/*Lees vanaf tabel/grafiek/dokument/diagram*
SF	Correct substitution in a formula/*Korrekte vervanging in 'n formule*
O	Opinion/Explanation/*Opinie/Verduideliking*
P	Penalty, e.g. for no units, incorrect rounding off, etc./*Penalisering, bv. vir geen eenhede, verkeerde afronding, ens.*
NPR	No penalty for correct rounding/*Geen penalisering vir korrekte afronding nie*
NPU	No penalty for omitting unit, but wrong unit is penalised/*Geen penaliseringe indien die eenheid uitgelos is nie, maar wel indien 'n verkeerde eenheid gebruik word.*
AO	Answer only/*Slegs antwoord*

These marking guidelines consist of 16 pages and 3 pages of notes.
Hierdie nasienriglyne bestaan uit 16 bladsye en 3 bladsye met notas.

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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.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra item presented.
- Rounding is an independent mark.
- General principle of marking, if the candidate makes one mistake one mark is deducted.
- A conclusion mark can only be given if relevant calculations precedes it.
- No penalty for rounding (NPR) if the first decimal is correct.

LET WEL:
- *As 'n kandidaat 'n vraag TWEE KEER beantwoord, sien slegs die EERSTE poging na.*
- *As 'n kandidaat 'n antwoord van 'n vraag doodtrek (kanselleer) en nie oordoen nie, sien die doodgetrekte (gekanselleerde) poging na.*
- *Volgehoue akkuraatheid (CA) word in ALLE aspekte van die nasienriglyne toegepas; dit hou egter op by die tweede berekeningsfout.*
- *Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra item.*
- *Afronding tel as 'n afsonderlike punt.*
- *Die algemene beginsel van merk as 'n leerder een fout maak, word een punt afgetrek.*
- *'n Gevolgtrekkingspunt kan slegs gegee word indien relevante berekeninge dit voorgaan.*
- *Geen penalisering vir ronding (NPR) as die eerste desimaal korrek is nie.*

QUESTION/*VRAAG* 1 [29 MARKS/*PUNTE*] ANSWER ONLY FULL MARKS			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
1.1.1	Discrete / *Diskreet* ✓✓A	2A correct classification (2)	D L1 E
1.1.2	Twelve million nine hundred and twenty nine thousand nine hundred and thirty nine / *Twaalf miljoen negehonderd nege en twintig duisend negehonderd nege en dertig* ✓✓A	2A correct wording (2)	D L1 E
* 1.1.3	B ✓✓RT	2RT correct session (2)	D L1 E
1.1.4	Increase / *Verhoging* = 88 706 141 − 88 704 344 ✓RT = 1 797 ✓A **OR / *OF*** (88 705 985 – 88 704 344) + (88 706 141 – 88 705 985) ✓RT = 1 641 + 156 = 1 797 ✓A	 1RT correct values 1A number of tracks **OR / *OF*** 1RT correct values 1A number of tracks (2)	D L1 E

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
* 1.1.5	✓RT 690 160 : 8 120 031 ✓A = 1 : 11,77 ✓A	1RT correct values 1A values in correct order 1A simplification Accept: 11,765 / 11,8 / 12 (3)	D L1 E
1.2.1	VAT / *BTW* ✓✓A	2A correct acronym (2)	F L1 E
* 1.2.2	Total price / *Totale prys* ✓RT = R18,05 + R41,84 + R12,16 + R8,33 + R0,11 + R6,98 + R11,53 ✓MA = R99,00 ✓A	1RT all values 1MA adding all values 1A simplification (3)	F L1 E
* 1.2.3	✓RT $\%\ \text{amount} = \frac{\text{R8,33}}{\text{R41,84}} \times 100\%$ ✓RT = 19,91% ✓A	1RT correct value 1RT correct value 1A simplification **NPR** (3)	F L1 M
1.2.4	Amount / *Bedrag* = 210 000 × R8,33 ✓MA = R1 749 300 ✓A	1MA multiplying correct values 1A simplification (2)	F L1 E
* 1.2.5	Number of CD's / *Aantal CD's* $= \frac{\text{R16,50}}{\text{R0,11}}$ ✓MA = 150 ✓A	1MA dividing by R0,11 1A simplification (2)	F L1 E
* 1.3.1	Gross monthly income is the monthly income before deductions / *Bruto maandelikse inkomste is die maandelikse inkomste voor aftrekkings.* ✓✓A	2A explanation (2)	F L1 E
* 1.3.2	Price of a vehicle / *Prys van voertuig* ✓✓RT = R1 000 000,00 / R1 million / 1 million rand = R1 000 000,00 / R1 miljoen / 1 miljoen rand	2RT correct price (2)	F L1 E

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
1.3.3	Monthly repayment / *Maandelikse terugbetaling* = R41 610,78 ✓RT = R42 000 ✓R	 RT correct value 1R rounding (2)	F L1 M
		[29]	

QUESTION/*VRAAG* 2 [40 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
2.1.1	Elite cheque account / *Elite Tjekrekening* ✓✓RT	2RT correct account Accept: Cheque account (2)	F L1 E
* 2.1.2	Total fees / *Totale fooie* ✓RT R1,60 + R69,00 + R110,00 ✓RT = R180,60 ✓CA	1RT two correct values 1RT third correct value 1CA simplification **AO** (3)	F L1 E
* 2.1.3	Net salary (A) / *Netto salaris (A)* ✓RT = R10 078,41 – R2 100,35 ✓MA = R7 978,06 ✓CA Portion of Net salary / *Gedeelte van Netto salaris* $= R7\,978{,}06 \div 4$ / $\times 0{,}25$ / $\times \frac{1}{4}$ ✓MCA = R1 994,52 ✓CA Total insurance / *Totale versekering* R940,39 + R940,39 = R1 880,78 ✓A R1 994,52 > R1 880,78 His statement is **INCORRECT** / *Sy bewering is* ***VERKEERD***. ✓O **OR / *OF***	1RT both correct values 1MA subtracting values 1CA simplification 1MCA dividing by 4 1CA simplification 1A total monthly insurance 1O conclusion **OR / *OF***	F L4 M

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
* 2.1.3	Net salary (A) / *Netto salaris (A)* ✓RT = R10 078,41 – R2 100,35 ✓MA = R7 978,06 ✓CA Total insurance / *Totale versekering* $= \frac{\text{R1 880,78}}{\text{R7 978,06}}^{\checkmark A} \times 100\%$ ✓MCA = 23,57% ✓CA 23,57% < 25% His statement is **INCORRECT** / *Sy bewering is* ✓O ***VERKEERD***. **OR / *OF*** Net salary (A) / *Netto salaris (A)* ✓RT = R10 078,41 – R2 100,35 ✓MA = R7 978,06 ✓CA Total insurance / *Totale versekering* R940,39 + R940,39 = R1 880,78 ✓A R1 880,78 × 4 ✓MCA = R7 523,12 ✓CA R7 978,06 > R7 523,12 His statement is **INCORRECT** / *Sy bewering is* ***VERKEERD.*** ✓O	1RT both correct values 1MA subtracting values 1CA simplification 1A numerator 1MCA denominator 1CA simplification 1O conclusion **OR / *OF*** 1RT both correct values 1MA subtracting values 1CA simplification 1A total monthly insurance 1MCA multiplying by 4 1CA simplification 1O conclusion (7)	

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
* 2.1.4	Amount excluding VAT / Bedrag *BTW uitgesluit* ✓A $= \frac{100}{115} \times \frac{R110,00}{1}$ ✓MA = R95,65217391 ✓A Amount including VAT / Bedrag *BTW ingesluit* $= R95,65217391 \times \frac{114}{100}$ ✓MA = R109,04 ✓CA **OR/*OF*** Amount excluding VAT / Bedrag *BTW uitgesluit* $= \frac{R110,00}{1,15}$ ✓A ✓MA = R95,65217391 ✓A Amount including VAT / Bedrag *BTW ingesluit* $= R95,65217391 \times 1,14$ ✓MA = R109,04 ✓CA	1A correct VAT calculation 1MA multiplying by $\frac{R110}{1}$ 1A simplification 1MA multiplying by $\frac{114}{100}$ 1CA simplification **OR/*OF*** 1A correct VAT calculation 1MA dividing by 1,15 1A VAT excluded amount 1MA multiplying by 1,14 1CA simplification (5)	F L3 D
* 2.2.1	Annual taxable income / *Jaarlikse belasbare inkomste* = R8 978,00 × 12 = R107 736,00 ✓A Tax bracket / *Belasting hakkie* = A **OR / *OF*** = 1 – 226 000 ✓✓RT **OR / *OF*** = 18% of taxable income	1A annual taxable income 2RT tax bracket **AO** (3)	F L2 M

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
2.2.2	Income Tax / *Inkomstebelasting* 18% of taxable income $= R107\,736{,}00 \times \frac{18}{100}$ ✓MCA = R19 392,48 ✓CA ✓MA = R19 392,48 − (R16 425,00 + R9 000,00) ✓MA = R19 392,48 − R25 425 = − R6 032,52 **OR / *OF*** R19 392,48 < R25 425 ✓CA His statement is **VALID** / *Sy bewering is* ***GELDIG***. ✓O **OR / *OF*** Annual Taxable Income / *Jaarlikse belasbare inkomste* = R107 736,00 Rebates / *Kortings* = R16 425 + R9 000 ✓MA = R25 425 ✓CA Tax Threshold / *Belastingdrempel* = R25 425 ÷ 18% ✓MCA = R141 250 ✓CA R141 250 is greater than / *is meer as* R107 736. ✓O His statement is **VALID** / *Sy bewering is* ***GELDIG***. ✓O	**CA from Question 2.2.1** 1MCA calculating 18% 1CA simplification 1MA subtracting rebate 1MA subtracting rebate 1CA simplification 1O conclusion **OR / *OF*** 1MA adding rebate 1CA simplification 1MCA dividing by 18% 1CA simplification 1O reason 1O conclusion (6)	F L4 M
2.3.1	Grants / Toelae ✓✓RT	2RT correct item (2)	F L1 E
* 2.3.2	Amount in thousands / *Bedrag in duisende* ✓RT R340 688 – (R111 769 + R48 152) ✓MA = R180 767 ✓CA	1RT correct values 1MA adding and subtracting 1CA simplification (3)	F L2 E
* 2.3.3	The amount is a deficit / *Die bedrag is 'n tekort.* ✓✓O **OR/*OF*** Indicates the amount is negative / *Dui aan dat die bedrag negatief is.* ✓✓O	2O opinion (2)	F L4 E

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
2.3.4	Net deficit / *Netto verlies* ✓RT ✓RT R313 792 – R322 891 ✓A = – R9 099	1RT correct value 1RT correct value 1A subtraction in correct order (3)	F L2 E
2.3.5	Net surplus/*Netto surplus*: ✓RT $Y = \frac{2,53}{100} \times \frac{317\ 582}{1}$ ✓MA = R8 034,825 **OR / *OF*** R8 035 ✓A Expenditure/*Uitgawes*: Z = R317 582 – R8 035 ✓MA = R309 547 **OR/*OF*** 100% – 2,53% ✓MA = 97,47% ✓A Expenditure / *Uitgawes* ✓RT $\frac{97,47}{100} \times \frac{317\ 582}{1}$ ✓MA = R309 547,18 ≈ R309 547	1RT correct value 1MA calculating surplus 1A simplification 1MA subtracting correct values **OR/*OF*** 1MA subtracting percentages 1A simplification 1RT correct value 1MA correct substitution (4)	F L3 M
		[40]	

QUESTION/*VRAAG* 3 [27 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
3.1.1	Male / *Manlik* ✓✓RT	2RT correct option (2)	D L1 E
* 3.1.2	Difference / *Verskil* ✓RT 21,5% − 11,1% ✓MA = 10,4% ✓CA	1RT correct values 1MA subtracting values 1CA simplification **NPU** (3)	D L2 E
* 3.1.3	The percentage of children in the under 5 year-category is almost the same. / *Die persentasie van kinders in die onder 5 kategorie is amper dieselfde.* ✓✓O There is a greater increase in urban than in rural for the over 5 years to 17-category / *Daar is 'n groter toename in stedelike as in landelike vir die bo 5 tot 17 jaar kategorie.* ✓O **OR / *OF*** Healthy food vs Junk food / *Gesonde kos vs gemorskos.* More active vs Less active / *Meer aktief vs Minder aktief.* Walking long distances to school vs Driving to school / *Stap lang afstande skool toe vs ry skool toe.* Manual labour vs Playing video games / *Handearbeid vs om videospeletjies te speel.* ✓O	2O comparison 1O comparison / comment (3)	D L4 D
3.1.4	Number of learners / *Aantal leerders* $\frac{16,3}{100} \times \frac{795}{1}$ ✓MA = 130 learners / *leerders* ✓A Learners not overweight or obese / *Leerders nie oorgewig of baie oorgewig nie* = 795 – 130 = 665 learners/*leerders* ✓CA **OR/OF**	1MA percentage calculation 1A simplification Accept: 129 1CA simplification Accept: 666 **OR/*OF***	D L2 M

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
3.1.4	Percentage / *Persentasie* 100% −16,3% = 83,7% ✓A Number of learners / *Aantal leerders* $\frac{83,7}{100} \times \frac{795}{1}$ ✓MA = 665 learners / *leerders* ✓CA	 1A finding the percentage 1MA percentage calculation 1CA simplification (3)	
* 3.1.5	Probability / *Waarskynlikheid* Overweight/Obese / *Oorgewig/Baie oorgewig* = 11,1% ✓MA = 100% − 11,1% = 88,9% ✓A = $\frac{889}{1\,000}$ ✓CA	 1MA calculating percentage 1A simplification 1CA correct fraction (3)	P L3 M
* 3.2.1	17,9 inches / *duim* ✓✓RT	2RT reading from chart Accept 17,8 − 18 (2)	D L2 M
3.2.2	✓RT ✓RT One month and 18 months *Een maand en 18 maande*	1RT correct age 1RT correct age (2)	D L2 M
3.2.3	The other child fell in a higher percentile / *Die ander kind val onder 'n hoër persentiel.* ✓✓A	2A correct conclusion (2)	D L4 M
3.3.1	75% ✓✓RT	2RT correct interpretation (2)	D L2 M
* 3.3.2	✓MA $\frac{50}{100} \times \frac{129}{1}$ ✓RT = 64,5 ✓A 64 children, because the 65th child will fall on the median / *64 kinders ,want die 65ste kind val op die mediaan.*	1MA calculating 50% 1RT finding 129 1A simplification (3)	D L3 D

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
* 3.3.3	Unfair sampling - Having sample population of 13 malnourished and 129 normal was <u>biased</u> from the beginning / *Onregverdige steekproefneming - Die steekproefpopulasie van 13 ondervoede en 129 normaal was van die begin af bevooroordeeld.* **OR / *OF*** ✓✓O The sample was <u>skewed</u> towards the normal nutritional status. The representation might have been based on the prevalence of malnourished to normal status. *Die steekproef neig meer na die normale voedingswaarde status. Die steekproef mag verteenwoordigend gewees het van wanvoeding tot normale status.*	2O correct explanation (2)	D L4 D
		[27]	

QUESTION/*VRAAG* 4 [33 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
* 4.1.1	No mode / *Geen modus* **OR / *OF*** None / *Geen* ✓✓A	2A no mode (2)	D L2 E
* 4.1.2	7 ✓✓A	2A number of items (2)	D L1 E
* 4.1.3	Amount for on-line / *Bedrag vir aanlyn* ✓MA = R 208,74 + (R15 × 2) = R238,74 ✓A Amount saved / *Bedrag gespaar* ✓RT = R261,80 – R238,74 = R23,06 ✓CA **OR / *OF*** Amount saved / *Bedrag gespaar* ✓RT ✓MA = (R261,80 – R208,74) – (R15,00 × 2) ✓A = R53,06 – R30 = R23,06✓CA	1MA multiply by 2 1A simplification RT correct value (R261,80) 1CA simplification **OR / *OF*** RT correct value (R261,80) 1MA multiply by 2 1A simplification 1CA simplification (4)	F L2 E
* 4.1.4	Median / *Mediaan* 11,95 12,99 13,95 14,99 15,95 15,95 18,95 20,99 22,95 23,99 27,95 29,95 ✓A ✓RT $= \frac{15,95 + 18,95}{2}$ ✓MA $= \frac{34,90}{2}$ = 17,45 ✓CA	1A arranging values 1RT two middle values 1MA concept of median 1CA simplification (4)	D L2 M
4.1.5	Probability / *Waarskynlikheid* $= \frac{6}{12}$ ✓✓A ✓A **OR / *OF*** $\frac{1}{2}$ **OR / *OF*** 0,5 **OR / *OF*** 50%	2A numerator 1A denominator **AO** (3)	P L3 E

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
* 4.2.1	Third lowest / *Derde laagste* = P&P store / *winkel* ✓✓A	 2A correct store (2)	F L1 E
* 4.2.2	Number of doughnuts / *Aantal oliebolle* = 50 × 4 ✓MA = 200 ✓A Cost of packets of doughnuts / *Koste van pakkies oliebolle* = R701 – R201 = R500 ✓A Cost per doughnut / *Koste per oliebol* = R500 ÷ 200 ✓MA = R2,50 ✓CA FLM store / *winkel* ✓A	 1MA multiplying by 4 1A number of doughnuts 1A cost of packs of doughnuts 1MA dividing by 200 1CA simplification 1A correct store (6)	F L3 D
4.2.3	✓A Disagree. The expenses is higher than the income / *Stem nie saam nie. Die uitgawes is hoër as die inkomste.* ✓✓O	1A disagree 2O reason (3)	F L4 M
* 4.2.4	Lower / *Laer* ✓A Income higher, therefore the break-even point will be reached sooner / *Inkomste verhoog, daarom sal die gelykbreekpunt vroeër bereik word.* ✓✓O Cost will be covered sooner / *Koste sal vroëer gedek word.*	1A lower 2O reason (3)	F L4 M
4.2.5	Percentage profit / *Persentasie wins* $\%\ \text{Profit} / \textit{Wins} = \frac{\text{R2 000 - R1 201}}{\text{R1 201}} \times 100\%$ ✓RT ✓RT ✓SF = 66,53% ✓CA	1RT correct value from graph RT correct value from graph 1SF correct substitution 1CA simplification **NPR** **NPU** **AO** (4)	F L2 M
		[33]	

QUESTION/*VRAAG* 5 [21 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
* 5.1.1	Wizz Air Group / *Groep* ✓✓RT	2RT correct aircraft group (2)	D L2 E
* 5.1.2	Percentage decrease / *Persentasie vermindering* ✓RT $A = \frac{3\,763 - 4\,290}{4\,290\ \checkmark A} \times 100\%$ $= -12{,}28438228\%$ ✓A $= -12\%$ ✓R **OR / *OF*** ✓RT $\%\ \text{operated} = \frac{3763}{4290} \times 100\%$ $= 87{,}71561772\%$ ✓MA **A** $= 87{,}71561772\% - 100\%$ $= -12{,}28438228\%$ ✓A $= -12\%$ ✓R	1RT correct value (3 763) 1A correct denominator 1A simplification 1R correct rounding **OR / *OF*** 1RT correct value (3 763) 1MA calculating % 1A simplification 1R correct rounding (4)	D L3 D
5.1.3	Range / *Omvang* ✓RT ✓RT $= 13\% - (-35\%)$ $= 48\%$ ✓A	1RT correct value 1RT correct value 1A simplification (3)	D L2 D
5.1.4	Value of B / *Waarde van B* $1\,028{,}2 = \frac{2\,566 + 1\,347 + ... + B + 547 + 536}{10}$ ✓MA ✓MA $1028{,}2 = \frac{9\,640 + B}{10}$ B = 1 028,2 × 10 – 9 640 ✓MA B = 642 ✓CA	1MA concept of mean 1MA adding values 1MA changing the subject of the formula 1CA simplification (4)	D L3 D

Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	
5.1.5	Probability / *Waarskynlikheid* $= \frac{2}{10}$ ✓A ✓A = 0,2 ✓CA	 1A numerator 1A denominator 1CA simplification **AO** (3)	P L3 E
* 5.2.1	Stronger / *Sterker* ✓✓A	2A stronger (2)	F L1 M
5.2.2	$1 = NIS 3,66061 ✓A Amount / *Bedrag* $= \frac{2\ 580}{1} \times 3,66061$ ✓MA = NIS 9 444,37 ✓A **OR / *OF*** NIS 1 = $0,27317867 ✓A Amount / *Bedrag* $= \frac{2\ 580}{0,27317867} \times 1$ ✓MA = NIS 9 444,37 ✓A	1A identifying correct exchange rate 1MA multiplying with exchange rate 1A simplification **OR / *OF*** 1A identifying correct exchange rate 1MA dividing with exchange rate 1A simplification **NPR** **AO** (3)	F L2 M
		[21]	
		TOTAL/*TOTAAL*: 150	