Western Cape Government
Education

Directorate: Curriculum FET

TERM 3 REVISION MATERIAL

GRADE 12

SUBJECT: MATHEMATICAL LITERACY

MEMORANDUM

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/document/diagram/*Lees vanaf 'n 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./*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*

FINANCE/ FINANSIES

QUESTION / VRAAG 1

Q/V	**Solution/*Oplossing***	**Explanation/*Verduideliking***
1.1.1	Annual gross salary / Jaarlikse bruto salaris = R13 200 × 12 ✓M = R158 400 ✓A	1 M multiply by 12 1 A answer
1.1.2	UIF / WVF = 1% of / van R13 200 = $\frac{1}{100}$ × R13 200 ✓M = R132,00 per month / per maand ✓A	1M method 1 A answer
1.1.3	Lebogang's portion / se gedeelte = $\frac{2}{3}$ ✓M Total / Totaal × $\frac{2}{3}$ = R1 273,00 ✓M ∴ Total / Totaal = R1 273,00 × $\frac{3}{2}$ ✓M = R1 909,50 Total monthly medical aid contribution / Totale maandelikse mediese hulpfonds betaling = R1 909,50 ✓CA	1 M method 1 M method 1 M multiply by $\frac{3}{2}$ 1 CA answer
1.1.4	(a) Bracket / Kategorie 1 ✓RT✓RT (b) Primary / Primêr: R13 500 ✓RT✓RT	2 RT reading diagram 2 RT reading diagram

	(c) Annual tax payable / Jaarlikse belasting betaalbaar = 18% × R153 180 – R13 500 ✓M ✓SF = R27 572,40 – R13 500 = R14 072,40 ✓A	1 M method 1 SF substutition 1 CA answer
1.1.5	A Sales representive / Verkoopsverteenwoordiger ✓A ✓A B R1 273,00 ✓A ✓A C R132,00 ✓CA ✓CA D R14 072,40 ÷ 12 ✓M = R1 172,70 ✓CA E R1 273,00 + R132,00 + R1 172,70 ✓M = R2 577,70 ✓CA F R13 200 – R2 577,70 ✓M = R10 622,30 ✓CA	2 A answer 2 A answer 2 CA answer 1 M divide by 12 1 CA answer 1 M adding all values 1 CA answer 1 M subtracting 1 CA answer
1.2.1	Monthly salary = Monthly taxable income ÷ 0.925 = Maandelikse belasbare inkomste ÷ 0,925 = R33 412,65 ÷ 0,925 ✓SF = R36 121,78 ✓A Annual salary = R36 121,78 x 12 ✓MCA = R433 461, 36 ✓CA	1 SF substituting R33 412,65 1 A answer 1 MCA multiply by 12 1 CA answer
1.2.2	He is under 65 years old and earning an income of more than R75 750 ✓O ; therefore, he qualifies to pay tax. ✓J	1 O explanation 1 J justification
1.2.3	Taxable income before rebates = R61 910 + 31% (R400 951,80 – R296 540) ✓RT✓SF = R94 277,66 ✓A Medical credit = R303 x 2 x 12 ✓M = R7272 ✓CA Payable tax = R94 277,66 – R7272 – R13500✓M = R73 505,66 ✓CA Monthly tax = R73 505,66 ÷ 12 ✓MCA = R6 125,47 ✓CA Therefore, his claim is invalid. ✓J	1 RT correct tax bracket 1 SF substituting R400 951,80 1 A answer 1 M multiplying by 2 and 12 1 CA answer 1 M subtracting rebates and medical credits 1 CA answer 1 MCA dividing by 12 1 CA answer 1 J justification

1.3	✓A ✓MCA Income tax = R147 996 + 39% × R(663 000- 550 100) = R147 996 + 39% × R112 900 ✓S = R147 996 + R44 031 = R192 027 ✓CA Total Income Tax (after rebates) = R192 027 - R13 500 - R7 407 ✓M = R171 120 ✓CA	1 A correct bracket 1 MCA amount above 1 S simplification 1 CA tax before rebate 1M subtracting both rebates 1 CA tax after rebate
1.4.1	$A = R\ 21\ 548{,}45 \times \frac{7{,}5}{100}$ ✓M $= R\ 1\ 616{,}13$ ✓A $B = R\ 1\ 616{,}13 + R\ 2\ 843{,}76 + R\ 1\ 569 + R\ 120{,}67 + R\ 97 + R\ 15$ ✓M $= R\ 6\ 261{,}56$ ✓CA $C = R\ 43\ 996{,}90 - R\ 6\ 261{,}56 = R\ 37\ 735{,}34$ ✓MA	1M multiply basic salary by 7,5% 1A answer 1M adding correct deductions 1CA answer 1MA answer
1.4.2	$R\ 34\ 178 + \frac{26}{100} \times (R\ 296\ 540$ ✓SF $- R\ 189\ 880)$ ✓F $= R\ 34\ 178 + \frac{26}{100} \times R\ 106\ 660$ $= R\ 34\ 178 + R27\ 731{,}60$ $= R\ 61\ 909{,}60 \approx R\ 61\ 910$ ✓R	1F choosing correct formula 1SF substituting correct value 1R rounding
1.4.3	Gross Annual Salary $= R\ 21\ 548{,}45 \times 13$ + R900 × 12 $= R\ 290\ 929{,}85$ ✓MA OR Annual Gross Salary $= (R\ 21\ 548{,}45 \times 12) + R\ 21\ 548{,}45$ + R900 × 12 $= R\ 290\ 929{,}85$ Annual tax deductibles $= (R\ 120{,}67 + R\ 1\ 616{,}13) \times 12$ ✓M $= R\ 20\ 841{,}60$ ✓A Taxable income $= R\ 290\ 929{,}85 - R\ 20\ 841{,}60$ $= R\ 270\ 088{,}25$ ✓MA 2nd tax bracket: ✓F $R\ 34\ 178 + \frac{26}{100} \times (R\ 270\ 088{,}25$ ✓SF $- R\ 189\ 880)$ $= R\ 34\ 178 + \frac{26}{100} \times R\ 80\ 208{,}25$ $= R\ 34\ 178 + R20\ 854{,}15$ $= R55\ 032{,}15$ ✓CA Less rebates $= R\ 55\ 032{,}15 - R\ 13\ 635$ ✓RT	1MA gross annual salary **OR** 1M add UIF and Pension multiplying by 12 1A answer 1MA subtracting 1F choosing correct formula 1SF substitution 1CA answer 1RT reading primary rebate from table

	$= \text{R } 41\ 397{,}15$ ✓MA Annual medical credit $= \text{R } 303 \times 2 \times 12 = \text{R } 7\ 272$ ✓MA Net tax payable per annum $= \text{R } 41\ 397{,}15 - \text{R } 7\ 272$ $= \text{R } 34\ 125{,}15$ ✓MA PAYE $= \text{R } 34\ 125{,}15 \div 12$ ✓M $= \text{R } 2\ 843{,}76$ ∴ Her statement was incorrect / false. ✓O	1MA subtracting 1MA medical credit for 2 adults multiply by 12 1CA answer 1M divide by 12 1O validity of statement

QUESTION / VRAAG 2

2.1.1	Accommodation per person = $\frac{R850}{3}$ ✓A = R283,33 ✓CA Kz 100 000 = R9 173,05 Amount Kwanza = $\frac{283{,}33}{9\ 173{,}05}$ x Kz100000 ✓A ✓M ≈ Kz3 088,76 ✓CA **OR** R9 173,05 = Kz100 000 R1 = $\frac{100\ 00}{9\ 173{,}05}$ ✓M = Kz 10,9014995 10, 9014995 x 850 ✓A ≈ Kz9 266,27 ✓CA Cost per person = $\frac{9\ 266{,}27}{3}$ ✓A ≈Kz3 088,76 ✓CA	1 A divide by 3 1CA accommodation per person in R 1A multiply by 100000 1M divide by 9173,05 1CA per person **OR** 1M divide by 9 173,05 1 A multiply by 850 1 CA total amount 1 A divide by 3 1 CA accommodation per person in Kz (using R850 per person max 5 marks. Multiplying R850 by 3 max 4 marks)
2.1.2	$1 = Kz 169,27344 Average disposable salary = $ 1 760,41 x Kz 169,27344/$ ✓M ≈ Kz297 990,66 ✓A	1M multiplying 1 A Disposable salary in Kz

	Angola: Rent as a % of income = $\frac{145\ 990}{297\ 990,99}$ x 100% ✓M = 48,99% ✓CA South Africa: Rent as a % of income = $\frac{4430}{16\ 500}$ 100% ✓M = 26,85% ✓CA Not valid .1t is much cheaper in SA but not double. ✓O	1M percentage calculation 1 CA percentage 1M percentage calculation 1 CA percentage 1 O conclusion
2.2.1	United Kingdom OR Britain ✓RT ✓RT	2RT correct country
2.2.2	South African rand = 0,070 US dollar ∴ \$1,94 = $\frac{1,94}{0,07}$ ✓M = R27,71 ✓A **OR** R95,57 ÷ \$6,69 = 14,2855... ✓M \$ 1,94 x 14,28855.... = R27,71 ✓A	1M dividing by exchange rate 1A rand value **OR** 1 M dividing by price in dollar 1 A rand value
2.2.3	(a) $\frac{113,96}{16,28}$ euro ✓M = 7 euro ✓A (b) $\frac{56,07}{267}$ ✓M = 0,21 ✓A 1 Indian Rupee equals 0,21 South African rand	1M dividing by exchange rate 1 A euro value with unit 1 M dividing by exchange rate 1 A rand value
2.2.4	SGD \$8,00 : SGD \$ 2,50 ✓A ✓MA 16 : 5 ✓CA	1 A identifying the correct values 1 MA ratio in correct Order 1 CA simplified ratio
2.2.5	United States of America and Brazil ✓RT ✓RT	1 RT United States of America 1 RT Brazil

2.3.1	$1¥ = \frac{1}{8,02}$ $= R0,124$ ✓A✓A OR 12c	2A correct answer
2.3.2	R800,00 × 8,02 = ¥6 416,00 ✓A ✓A	2A correct answer
2.3.3	✓MA ✓MA (R8 750,00 + R3 771 + (3 × R800,00) = R14 921,00 ✓A	1MA adding 1MA multiplying by 3 1A answer
2.4.1	✓M ✓CA ($2 × 2) + $1,50 + $1,00 = $6,50	1 M adding all values 1 CA answer
2.4.2	✓M ✓A 6,50 ÷ 0,080944 = R80,30	1M dividing by exchange rate 1 A answer in Rand
2.4.3	✓M ✓A (a) 6,50 × 12,354 192 = R80,30 (b) No ✓O ✓O	1 M multiply by exchange rate 1 A answer in Rand 2 O answer
2.5.1	Commission = 1,95% × £360,00 ✓MA = £7,02 ✓A	1 MA calculating % 1 A commission in pound
2.5.2	£360,00 = $\frac{360}{0,05773}$ ✓MA = R6 235,9258 ✓A = R6 235,93 ✓CA **OR** £1= $\frac{R\ 1,00}{0,05773}$ ✓MA = R17,32201628 £360 = R17,32201628 × 360 = R6 235,925862 ✓A = R6 235,93 ✓CA	1 MA conversion 1 A simplification 1 CA rounding 1 MA conversion 1 A simplification 1 CA rounding
2.5.3	Interest after 1 year = R5 000 × 6,3% ✓M = R315 Amount after year 1 = R5 000 + R315	1 M calculate interest for first year

	= R5 315,00 ✓A Interest for 2nd year = R5 315 × 6,3% ≈ R334,845 ✓CA Interest for ½ year = R334,845 ÷ 2 = R167,42 ✓M Value of the fixed deposit = R5 315 + R167,42 = R5 482,42 ✓CA	1 A simplification 1 CA 2nd year amount 1 M half year interest 1 CA simplification

PROBABILITY / WAARSKYNLIKHEID

QUESTION / VRAAG 3

3.1.1	Instrumental music ✓A $\frac{12}{24}$; 50% ; 0, 5 ✓A	1 A correct answer 1 A answer in any given form as proof
3.1.2	$\frac{0}{24}$ **OR** 0 **OR** 0% **OR** impossible ✓A✓A	2 A correct answer
3.1.3	✓A $\frac{6}{24}$ = 0,25 ✓A	1 A correct fraction 1 A answer as decimal
3.2.1	✓A ✓S $\frac{652}{1000} = \frac{163}{250}$	1 A correct fraction 1 S simplification
3.2.2	0,65 x 100 = 65 % ✓A✓A **OR** 0,652 x 100 = 65,2 % ✓A✓A	2 A correct answer
3.2.3	No ✓A There is still a 35% chance that it might not rain; it is not 100% certain. ✓J	1 A correct answer 1 J correct explanation
3.3.1	(a) 45 -25 = 20 ✓A✓A (b) 22 – 10 = 12 ✓A✓A (c) 20 + 30 + 10 + 15 + 10 = 85 ✓A✓A	2 A correct answer 2 A correct answer 2 A correct answer

	(d) 85 + 82 = 167 ✓A✓A	2 A correct answer
3.3.2	$\frac{20}{166}$ Wangui excluded / uitgesluit ✓A✓A	1 A denominator / noemer 1 A numerator / teller
3.3.3	$\frac{10}{85} = \frac{2}{17}$ ✓A ✓S	1 A correct fraction 1 S simplification
3.3.4	Male student with black eye colour / Manlike leerder met swart oogkleur✓A✓A	1 A gender 1 A colour
3.3.5	$\frac{35+20}{167} \times 100\%$ $= \frac{55}{167} \times 100\%$ = 32,93413174% ≈ 32,93%	1 A adding correct values 1 M percentage Calculation 1 CA percentage
3.4.1	A – 4 ✓A✓A B – Taxi ✓A✓A C- 2 ✓A✓A D – 1 ✓A✓A E – 4 ✓A✓A F – Taxi ✓A✓A G – 4 ✓A✓A	2 A correct answer 2 A correct answer 2 A correct answer 2 A correct answer 2 A correct answer 2 A correct answer 2 A correct answer
3.4.2	✓A ✓A $\frac{3}{7} \times \frac{2}{10}$ $= \frac{6}{70}$ ✓CA $= \frac{3}{35}$ ✓S	2 A correct values 1 CA answer 1S simplification

MAPS, PLANS AND OTHER REPRESENTIONS / KAARTE, PLANNE EN ANDER VOORSTELLINGS
QUESTION / VRAAG 4

4.1.1	176 seats ✓A✓A	2 A correct answer
4.1.2	8 wheel chairs ✓A✓A	2 A correct answer
4.1.3	North East ✓A✓A	2 A correct answer
4.1.4	F ✓A 14 ✓A	1A row 1A seat number

4.1.5	Go left from seat F15. ✓A Turn right in the aisle between row E and F. ✓A Proceed in a North-easterly direction until you reach the stage straight ahead. ✓A	1M left direction 1M right into aisle 1 M direction to stage
4.2.1	Number scale ✓A✓A	2 A correct answer
4.2.2	It means that 1 unit on the map represents 200 units in reality. ✓J✓J	2 J explanation
4.2.3	12 doors ✓A✓A	2 A correct answer
4.2.4	West elevation ✓A✓A	2 A correct answer
4.2.5	Length = 26 mm ✓RG Breadth = 26 mm ✓RG ✓U **OR** Length × Breadth ✓RG ✓RG 26mm × 26mm ✓U **OR** Length = 2,6 cm ✓RG Breadth = 2,6 cm ✓RG Thus, 26 mm x 26 mm ✓C	1 RG measuring the length 1 RG measuring the breadth 1U correct values in mm **OR** 1 RG measuring the length 1 RG measuring the breadth 1C conversion to mm **Measure on final copy**
4.3.1	11 ✓RT✓RT	2 RT reading from Diagram
4.3.2	Clockwise ✓A✓A	2 A direction
4.3.3	Voting booths ✓A✓A	2 A correct point
4..4.1	Density = $\frac{39\,000}{13{,}5\ acres}$ ✓SF = 2 888,88 persons per acre ✓CA = 2 889 persons per acre ✓R	1 SF substitution of correct values 1 CA simplification 1 R rounding
4.4.2	P = $\frac{11393}{39\,000}$ ✓RT ✓M ≈ 0,29 OF / OR 29,21% ✓CA	1 RT reading values 1M probability concept 1 CA correct rounded probability

4.4.3	There are provisions made for disabled spectators who don't require seats. ✓O✓O OR Some people can be standing. OR Staff, line judges, officials, coaches, media personnel.	2 O reason
4.4.4	No. 3 court, it is closest to the road. ✓O✓O ✓A	1 A correct court 2 O explanation (accept No. 2 court, it is closer to the car park)
4.4.5	West OR North West ✓A✓A	2A direction
4.4.6	Width of the screen = $\frac{40m^2}{5}$ ✓M = 8m ✓A Measured width of screen 7 mm ✓A Scale: 7 mm : 8 m 7 mm : 8 000 mm ✓C 1 : 142,86 ✓CA **Measure on final copy**	1M dividing 1 A width 1 A measured length 1 C converting 1 CA unit scale NPR
4.5.1	F ✓A✓A	2A correct number
4.5.2	✓A ✓A 7 and 8	1 A correct number 1 A correct number
4.5.3	Fewer rows with seats in this region ✓O✓O OR The people in wheelchairs (physically challenged) will use it from their demarcated area. OR Guards sitting there/ technical personnel	2 O reason
4.5.4	Area of the court = 41 m x 22 m = 902m^2 ✓A Seed needed = 902 m^2 x 245 g/m^2 ✓M = 220 990g =220,99kg ✓CA Fescue seed = $\frac{3}{10}$ x 220,99 kg ✓M = 66,297 kg ✓CA The statement is not valid. ✓O	1 A area 1 M multiply with spread Rate 1 C converting to kg 1 M working with ratio 1 CA mass of red fescue seed 1 O conclusion

MODELS / MODELLE
QUESTION / VRAAG 5

5.1.1	(a) Unscrewed ✓A✓A (b) Anti-clockwise **OR** left **OR** counter-clockwise ✓A✓A	2 A unscrewed 2 A direction
5.1.2	3 ✓A✓A	2 A 3 screws
5.1.3	3 ✓A✓A	2 A correct diagram
5.1.4	Actual length = 62 mm × 30 **OR** 6,2 cm × 30 ✓M = 1 860 mm = 186 cm ✓A = 1,86 m = 1,86 m ✓C OR ✓C ✓M Actual length = 0,062 m × 30 = 1, 860 m ✓CA	1 M multiply by scale 1 A length in mm/cm 1C conversion 1 C conversion 1 M multiply by scale 1 CA length in m
5.2.1	B, C, A, D ✓A✓A	2 A correct order
5.2.2	C ✓A✓A	2 A answer
5.3	Length of table = 1,75 m Half the length of the table = 1,75 m ÷2 = 0,875 m ✓A **If scale 1 : 8 is used** Length of model = 7,5 m ÷ 8 ×1 ✓M = 0,9375 m ✓CA 0,9375 m will not fit on the actual table. Therefor the scale of 1 : 8 will NOT be suitable ✓O✓O	1 A calculating half the table size 1 M using the scale 1 CA calculating modal length 2 O deduction