education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

MATHEMATICAL LITERACY P1

SEPTEMBER 2023

MARKS: 150

TIME: 3 hours

This question paper consists of 10 pages and an addendum with 5 annexures.

INSTRUCTIONS AND INFORMATION

1.   This question paper consists of FIVE questions. Answer ALL the questions.

2.   Use the ANNEXURES in the ADDENDUM for the following questions:

        ANNEXURE A for QUESTION 1.1
        ANNEXURE B for QUESTION 3.1
        ANNEXURE C for QUESTION 4.1
        ANNEXURE D for QUESTION 4.2.1
        ANNEXURE E for QUESTION 5.1

3.   Number the answers correctly according to the numbering system used in this question paper.

4.   Start EACH question on a NEW page.

5.   You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.

6.   Show ALL calculations clearly.

7.   Round off ALL final answers appropriately according to the given context, unless stated otherwise.

8.   Indicate units of measurement, where applicable.

9.   Diagrams are NOT necessarily drawn to scale, unless stated otherwise.

10.   Write neatly and legibly.

QUESTION 1

1.1

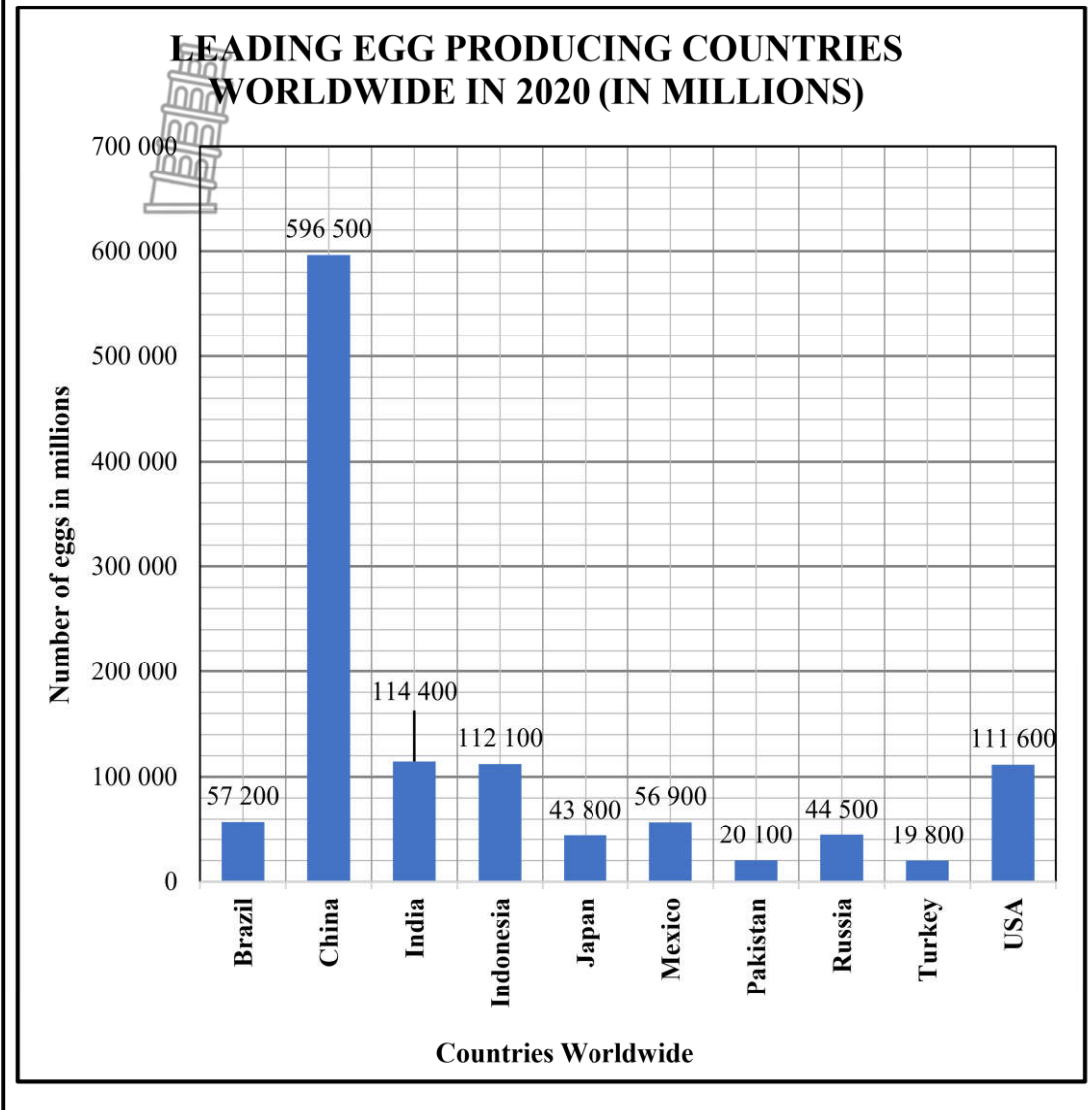| Farmer Brown compared chicken egg prices from one of the local SPAR supermarkets, to adjust his selling prices of eggs. He mainly sells to local schools and coffee shops. |
| ANNEXURE A shows the prices of SPAR the supermarket compared to Farmer Brown's chicken eggs. |

Use the ANNEXURE A to answer the questions that follow.

1.1.1 How many eggs are in a double tray? (2)

1.1.2 Name two ways that an egg can be served. (2)

1.1.3 Determine **A**, the cost of a dozen eggs at SPAR, if it is double the price of a half a dozen eggs. (2)

1.1.4 Calculate the unit price for one egg from the 18's egg tray of SPAR. (2)

1.1.5 Calculate, **B,** the price Farmer Brown will charge for a tray of eggs if the tray is sold for 22% less than SPAR's price. (3)

1.1.6 One of the local schools has four hostels. They purchase eight boxes of eggs per week. One box consists of 360 eggs.

Determine the number of eggs they use in February. (3)

1.1.7 Farmer Brown charged them for the eggs per double tray.

Calculate the total amount they paid for the eggs in February. (3)

1.2 | Statistics are collected of leading egg producing countries worldwide.

LEADING EGG PRODUCING COUNTRIES WORLDWIDE IN 2020 (IN MILLIONS)

Bar graph showing Number of eggs in millions (y-axis, 0 to 700 000) vs Countries Worldwide (x-axis):
- Brazil: 57 200
- China: 596 500
- India: 114 400
- Indonesia: 112 100
- Japan: 43 800
- Mexico: 56 900
- Pakistan: 20 100
- Russia: 44 500
- Turkey: 19 800
- USA: 111 600

[Adapted from statista.com]

Use the graph above to answer the questions that follow.

1.2.1   Arrange the number of eggs produced in ascending order.   (2)

1.2.2   Write down the value of the eggs produced in Mexico in words.   (2)

1.2.3   Identify the country with the third lowest egg production.   (2)

1.2.4   Determine the difference between the eggs produced in China and India.   (3)

1.2.5   Write down, as a simplified ratio, the number of eggs produced in Turkey to the number of eggs produced in Brazil.   (3)

[29]

NW/September 2023
NSC

QUESTION 2

2.1 Roxanne runs a farm in Gauteng. It is essential to constantly have power on the farm. She studied the price increase in the petroleum products, to see how it will influence their production costs.

TABLE 1: PETROLEUM PRODUCTS: PRICES IN CENTS PER LITRE

COASTAL				
	Jan 2021	**July 2021**	**Jan 2022**	**July 2022**
95 LRP (c/ℓ)	1 416,00	1 667,00	1 889,00	2 609,00
95 ULP (c/ℓ)	1 416,00	1 667,00	1 889,00	2 609,22
Diesel 0,05% (c/ℓ)	1 240,12	1 447,12	1 663,18	2 475,24
Diesel 0,005%(c/ℓ)	1 241,52	1 450,52	1 666,58	2 487,64

GAUTENG				
93 LRP (c/ℓ)	1 467,00	1 720,00	1 936,00	2 631,00
93 ULP (c/ℓ)	1 469,00	1 720,00	1 936,00	2 631,00
95 ULP (c/ℓ)	1 486,00	1 739,00	1 961,00	2 674,00
Diesel 0,05% (c/ℓ)	1 300,42	1 508,62	1 724,68	2 540,44
Diesel 0,005%(c/ℓ)	1 301,82	1 512,02	1 728,08	2 552,84

[Adapted from sapia.org.za]

Use the TABLE 1 above to answer the questions that follow.

2.1.1 Write the price of Diesel 0,05% July 2021 of Gauteng in rand. (2)

2.1.2 Roxanne calculated that they have load shedding for 2,5 hours, 3 times per day stage 4 load shedding. She uses 7 liters of diesel per 2,5 hours. Calculate the cost for 0,05% diesel per day in July 2022 in c/ℓ. (3)

2.1.3 Roxanne stated that there is more than 20% difference between the:
* percentage difference from January to July 2022 petrol price 95 (LRP) and
* percentage difference from January to July 2021 petrol price 95 (LRP) in the Coastal area.
Verify, showing ALL calculations, whether her predictions will be correct.

You may use the formula:

$$\text{Percentage difference} = \frac{\text{New price} - \text{Old price}}{\text{Old price}} \times 100\%$$

(7)

2.2 With the constant loadshedding they decided to install a generator on the farm. Cillian, her farm manager, contacted the dealers and decided on a Cummins 140 kVA diesel generator.

Below are the prices that Cilian sourced from the dealers.

CASH PRICE	HIRE PURCHASE
R326 395 (VAT inclusive)	Deposit: 10%
(13,5% discount on cash purchase)	Monthly instalment: R17 031,70
	Time: 2 years
Installation fee: R35 000	

Use the above information and answer the questions that follow.

2.2.1   Explain the term *hire purchase*. (2)

2.2.2   Determine, excluding VAT, the generator's cash price. (3)

2.2.3   Calculate the total amount Cillian would pay for the generator if he paid cash for the generator with installation. (5)

2.2.4   Roxanne requested that he should also calculate what the difference in price will be, if the generator was bought with a hire purchase agreement. Show ALL calculations. (8)

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QUESTION 3

TABLE 3 on ANNEXURE B represents the participants for the Comrades Marathon from 2007 until 2019.

Use the ANNEXURE B to answer the questions that follow.

3.1   State whether the above data set is classified as discreet or continuous.   (2)

3.2   Explain the term *mode*.   (2)

3.3   Determine the route that had the most total entries from 2008 to 2019.   (4)

3.4   Determine the median number of female finishers of the Comrades Marathon participants for the period 2007 to 2019.   (3)

3.5   Determine the value of **A**, the highest number of total finishers if the range is 7 856.   (3)

3.6   Calculate the mean number of starters for the Comrades Marathon for the year 2007 to 2019.   (4)

3.7   Determine the percentage athletes entered that did not finish in 2019.   (5)

3.8   Give a possible reason why there is a difference in the participants that started the race and those that finished the race.   (2)

3.9   Determine the probability (as a percentage rounded to ONE decimal place) of randomly selecting a female finisher in 2011.   (4)

[29]

QUESTION 4

4.1

> Harvey a swimming instructor that lives in Johannesburg, had maintenance done on his swimming pool. His pool is on his residential premises. He drained the pool and after the maintenance was done, it had to dry for 7 days.
>
> The pool had to be refilled with water before the preseason for the Provincial Gala. The pool needs 150 kℓ to be filled to the brim.

Use the ANNEXURE C and the information above and answer the questions that follow.

4.1.1 Explain the term *tariff*. (2)

4.1.2 Write down the tariff for above 60 kℓ for Tswane. (2)

4.1.3 Calculate the amount Harvey will pay to fill his pool, VAT included, if it is filled 95% of the capacity of the pool. (8)

4.2

> Mr Caviezel, an educator, earns a taxable income of R29 470,00 per month. He is married and has one daughter. He was born in 1967.
>
> Medical aid: Mr Caviezel, his wife and one child are covered by the medical aid.
>
> ANNEXURE D shows the monthly personal tax payable.

Use ANNEXURE D to answer the questions that follow.

4.2.1 Calculate Mr Caviezel's annual Medical Tax Credits. (4)

4.2.2 Mr Caviezel states that he will pay R50 000 towards his personal income tax per annum.

Verify, showing ALL calculations, whether his statement will be correct. (7)

4.3

Kalt WerdenVorganger shared a monthly savings strategy at 7% interest for two different amounts.

TABLE 4: AMOUNTS SAVED PER YEAR

YEAR	$240/MONTH	$475/MONTH
1	3 228	6 388
2	6 425	12 716
3	9 846	19 487
4	13 506	26 732
5	17 423	34 484
6	21 614	42 778
7	26 098	51 653
8	30 897	61 150
9	36 037	71 311
10	41 524	82 183
11	47 402	93 817
12	53 691	106 265

[Adapted from auscacoop.com]

4.3.1   Kalt saved $475 a month for 12 years. He decided to divide the money between his two children Kally and Kristen in the ratio 5:7.

           Calculate the amount each child will receive.   (4)

4.3.2   Kalt stated that the inter quartile range when $240 is saved, is $27 104,50.

           Verify, showing ALL calculations, whether his statement will be correct.   (7)

                                                                                      [34]

QUESTION 5

> The table on the ANNEXURE E represents the ten schools with the highest school fees in South Africa for the year 2020.

Use the TABLE in ANNEXURE E and answer the questions that follow.

5.1   Identify the name of the school with the second highest total school fees.   (2)

5.2   Calculate the value of **A**.   (2)

5.3   Calculate what percentage of the total school fees of St John's College will be paid towards boarding fees   (3)

5.4   Determine the probability that the total school fees are above R270 000. Write your answer as a decimal number.   (3)

5.5   The Shelby family wants to enrol their triplets, two girls in St Andrews's College and son in Michaelhouse. The grandparents insisted in paying 60% of the annual amount. Calculate the total school fees per month, if they pay over a 10-month period.   (7)

5.6   The grandparents paid £27 500 into the Shelby family's account. Determine if it will cover 60% of the expenses towards the school fees if the exchange rate is 1£ = R19,4020.   (4)

5.7   Thomas decides to invest money in a fixed deposit to save for the amount they need to pay towards school fees. He pays R250 000 into an account for two years. The bank offers him an interest rate that is compounded annually at an interest rate of 6,25% for the first year and 7,75% per annum for the second year. Thomas estimates that he will receive more than R35 000 on interest in the 2 years.

Calculate, showing ALL calculations, if his estimation is correct.   (7)
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TOTAL: **150**

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GRADE/*GRAAD* 12

MATHEMATICAL LITERACY P1/
WISKUNDIGE GELETTERDHEID V1

SEPTEMBER 2023

MARKING GUIDELINES/*NASIENRIGLYNE*

MARKS/*PUNTE*: 150

Symbol/*Kode*	Explanation/*Verduideliking*
M	Method/*Metode*
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./*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*
RCA	Rounding consistent with accuracy/ *Afronding met volgehoue akkuraatheid*
NPU	No penalty for omitting unit, but wrong unit is penalised/ *Geen penalisasie indien die eenheid uitgelos is, maar wel indien 'n verkeerde eenheid gebruik word*

These marking guidelines consist of 13 pages.
Hierdie nasienriglyne bestaan uit 13 bladsye.

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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.
- 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.
- Rounding is an independent mark.
- In opinion type questions marks will only be awarded if relevant calculations are shown.

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.*
- *LET WEL: volgehoue akkuraatheid (CA) geld nie in die geval van 'n afbreek nie.*
- *Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra item.*
- *'n Algemene nasien beginsel is dat indien 'n kandidaat een fout maak en daarna voortgaan met korrekte wiskunde, dat die kandidaat slegs een punt verloor.*
- *Afronding tel as 'n afsonderlike punt.*
- *In opinie tipe vrae sal punte slegs toegeken word indien relevante berekeninge aangetoon is.*

Note: Questions marked with *refers to notes/*Vrae gemerk met*, vewys na die notas.*
Questions where the numbers are encircled are the ones where we have a tolerance range.
Vrae waar die nommer omkring is, is waar ons 'n toleransie omvang het.

QUESTION/*VRAAG* 1 [29 MARKS/*PUNTE*] ANSWER ONLY FULL MARKS

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
1.1.1	✓MA $30 \times 2 = 60$ ✓A	1MA correct value multiplied by 2 1A number of eggs (2)	F L1
1.1.2	Baked, poached, boiled, scrambled eggs ✓✓A *Gebak, posjeer, gekook, roereier*	2A any two correct/*enige* twee (2)	F L1
1.1.3	✓MA R14,99 × 2 = R29,98 ✓A	1MA multiplying correct value by 2 1A correct amount/*korrekte bedrag* (2)	F L1
1.1.4	✓MA R34,99 ÷ 18 = R1,94 ✓A	1CA dividing R34,99 with 18/*deling* 1A unit cost per egg/*eenheidskoste per eier* (2)	F L1

1.1.5	✓MA R64,99 × 22% = R14,2978 ✓MCA R64,99 – R14,2978 = R50,69 ✓CA **OR/OF** 100% − 22% = 78% ✓MA R64,99 × 78% ✓MCA = R50,69 ✓CA	1MA multiplying correct value with 22% 1MCA adding answer to original amount 1CA price for egg tray 1MA subtracting 22% from 100% 1MCA multiplying amount with 78% 1CA price for egg tray (3)	F L1
1.1.6	✓MA 360 × 8 boxes/bokse = 2 880 eggs/eiers ✓MCA ✓CA 2 880 × 4 = 11520 eggs/eiers	1MA multiply 360 by 8 1MCA multiply answer by 4 weeks 1CA correct number of eggs (3)	F L1
1.1.7	✓CA 11 520 ÷ 60 = 192 eggs/eiers 192 × R95,50 ✓MCA = R18 336 ✓CA	**CA** from 1.1.6 1CA divide by 60 1MCA multiply with R95,50 1CA amount paid/bedrag betaal (3)	F L1
1.2.1	✓RT 19 800 million; 20 100 million; 43 800 million; 44 500 million; 56 900 million; 57 200 million; 111 600 million; 112 100 million; 114 400 million; 596 500 million ✓A	1RT correct values/korrekte waarde 1A ascending order/stygende orde (2)	D L1
1.2.2	Fifty-Six Billion Nine Hundred Million ✓✓A Ses en vyftig biljoen, negehonderd miljoen.	2A correct wording/korrekte bewoording (2)	D L1
1.2.3	Japan ✓✓A	2A correct country/korrekte land (2)	D L1
1.2.4	✓RT ✓MA 596 500 million − 114 400 million = 482 100 million ✓A	1RT correct values 1MA subtracting correct values/aftrekking van korrekte waarde 1A number of eggs (3)	D L1
1.2.5	19 800 million : 57 200 million ✓A ✓A ✓A 9 : 26	1RT correct values in correct order 1A correct simplification 1A written in correct ratio(3)	D L1
		[29]	

QUESTION/*VRAAG* 2 [30 MARKS/*PUNTE*]

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
2.1.1	R1 508,62÷ 100 ✓MA = R15,09 ✓A	1MA conversion/*herlei* 1A answer in rand/*antwoord in rand* (2)	F L1
2.1.2	Cost for diesel/*Dieselkoste* $7 \times 3 = 21$ ✓MA $21 \times 2540,44$ ✓MA = 53 349,24 c/ℓ ✓A	1MA multiply 7 litres with 3 1MA multiply answer with correct value 1CA correct cost/*korrekte koste* (3)	F L2
2.1.3	Coastal/*Kus* - 2021 % Difference/*Verskil* $= \frac{New - Old}{Old} \times 100\%$ ✓RT $= \frac{1667 - 1416}{1416} \times 100\%$ $= 17,726\%$ ✓A Coastal/*Kus* - 2022 % Difference/*Verskil* $= \frac{New - Old}{Old} \times 100\%$ ✓RT $= \frac{2609 - 1889}{1889} \times 100\%$ ✓A $= 38,115\%$ ∴ $38,115\% - 17,726\%$ ✓MCA $= 20,389\%$ ✓CA Yes, her statement is correct ✓O *Ja, haar stelling is korrek*	1RT substituting correct values/*vervanging van korrekte waardes* 1A simplification/*vereenvoudig* 1RT substituting correct values 1A simplification/*vereenvoudig* MCA subtracting correct percentages 1CA percentage difference 1O correct conclusion (7)	F L4

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
2.2.1	Hire purchase ✓✓O A system by which someone pays for a thing/goods in regular instalments while having the use of it. *Huurkoop* *'n Sisteem waar iemand betaal vir iets/goedere in gereelde paaiemente terwyl hulle die gebruik het daarvan.* **OR/OF** You have the goods and then you pay an agreed amount by installments until it is paid off. *Jy het die gebruik van goedere en betaal 'n vasgestelde bedrag in paaiemente totdat dit afbetaal is.* ✓✓O	2A Explanation of hire purchase/*verduidelik huurkoop* (2)	F L1
2.2.2	✓RT R326 395 ÷ 1,15 ✓MA = R283 821,74 ✓A **OR/*OF*** ✓RT R326 395 × $\frac{100}{115}$ ✓MA = R283 821,74 ✓A	1RT correct value 1MA dividing with 1,15 1A amount VAT excluded 1RT correct value 1MA multiplying with $\frac{100}{115}$ 1A amount VAT excluded (3)	F L2
2.2.3	Cash amount/*Kontant bedrag* 100% − 13,5% = 86,5% ✓MA R326 395 × 85,6% ✓MA = R282 331,675 ✓A R282 331,675 + R35 000,00 ✓MCA = R317 331,68 ✓CA **OR/OF** Cash amount/*Kontant bedrag* R326 395 × 13,5% ✓MA = R44 063,325 ✓CA R326 395 − R44 063,325 ✓MCA R282 331,675 + R35 000,00 ✓MA = R317 331,68 ✓CA	1MA subtracting 13,5 % from 100% 1MCA multiplying correct amount by 86,5% 1CA answer 1MA adding R35 000 1CA correct cash amount/*korrekte kontant bedrag* 1MA multiplying correct value by 13,5 % 1A answer 1MCA answer 1MA adding R35 000 1CA correct cash amount/ *korrekte kontant bedrag* (5)	F L2

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
2.2.4	Amount saved/*Bedrag gespaar* R326 395 × 10% ✓MA = R32 639,50 ✓A R17 031,70 × 24 ✓MA = R408 760,80 ✓S R408 760,80 + R32 639,50 ✓MCA = R441 400,30 ✓CA R441 400,30 – R317 331,68 ✓MCA = R124 068,62 ✓CA	**CA** from Q2.2.3 1MA multiply cash price by 10% 1A correct amount 1MA multiply by 24 months 1S simplification 1MCA adding the deposit to monthly instalments 1 CA simplification 1MCA subtracting cash amount 1CA amount saved (8)	F L3
		[30]	

QUESTION/*VRAAG* 3 [29 MARKS/*PUNTE*]

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
3.1	Discreet/*Diskreet* ✓✓A	2A discreet (2)	D L1
3.2	The value that appears the most/*Die waarde wat die meeste voorkom.* ✓✓A	2A explanation/ *verduideliking* (2)	D L1
3.3	Up/*Opdraende* ✓MA 11 189 + 19 591 + 19 907 + 22 402 + 41 494 + 24 594 = 119 177 entries/*inskrywings* ✓A Down/*Afdraende* 12 952 + 23 567 + 19 545 + 20 104 + 21 569 + 21 272 = 119 009 entries/*inskrywings* ✓A 119 177 – 119 009 = 168 entries/*inskrywings* ✓CA The UP race had 168 more entries *Die opdraende resies het 168 meer inskrywings*	1MA adding correct values 1A total entries up 1A total entries down 1CA difference in entries (4)	D L3
3.4	✓RT 1 412; 1 749; 1 763; 1 961; 2 184; 2 334; 2 440; 2 504; 2 700; 2 959; 3 055; 3 128; 3 372 ✓A Median/*Mediaan* - 2 440 ✓CA	1RT correct values 1A ascending order/ *stygende orde* 1CA correct median (3)	D L2
3.5	Range = Highest value – Lowest value 7 856 = A – 8 626 ✓MA 7 856 + 8 626 = A ✓MA A = 16 482 ✓A **OR/*OF*** ✓MA A = 13 110 + 3 372 ✓RT = 16 482 ✓A	1MA substitution into formula 1MA simplifying 1A correct highest value 1RT correct values 1MA adding correct values 1A correct highest value (3)	D L2

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
3.6	Mean = $\dfrac{\textbf{sum of all the values}}{\textbf{number of values}}$ ✓MA $= \dfrac{\substack{11\,147+10\,330+11\,345+16\,482+12\,648+16\,613+18\,578+ \\ 14\,693+16\,517+16\,807+17\,031+19\,047+19\,078}}{13}$ $= \dfrac{200\,316}{13}$ ✓MA $= 15\,408{,}92308$ ✓CA $\therefore = 15\,409$ athletes/atlete ✓A	1MA adding correct values/ tel korrekte waarde op 1MA concept of mean dividing by 13 1CA correct answer 1CA correct rounded answer (4)	D L2
3.7	Percentage athletes that did not finish/Persentasie atlete wat nie klaar gemaak het nie. ✓MA $= \dfrac{19\,078}{24\,594} \times 100$ ✓MA $= 77{,}57\%$ ✓A $100\% - 77{,}57\%$ ✓MA $= 22{,}428\%$ $\approx 22{,}43\%$ ✓CA **OR/OF** ✓MA $24\,594 - 19\,078$ $= 5\,516$ ✓A ✓MA $= \dfrac{5\,516}{24\,594} \times 100$ ✓MA $= 22{,}43\%$ ✓A	1MA dividing correct values 1MA percentage calculation 1A simplification/ vereenvoudiging 1MA subtracting % from 100% 1A correct rounded answer/ korrek afgerond 1MA subtracting correct values 1A correct answer 1MA dividing correct values 1MA percentage calculation 1A correct rounded answer (5)	D L3
3.8	Some of the athletes did not finish the race due to injuries. Athletes did not finish before the cut off time. Seker atlete het nie klaar gemaak as gevolg van beserings. Atlete het nie voor die afsnytyd klaar gemaak nie.	 2O correct opinion (2)	D L4
3.9	Probability/Waarskynlikheid ✓A Probability $= \dfrac{2\,184}{11\,054} \times 100$ ✓MA ✓A $= 19{,}757\%$ $\approx 19{,}8\%$ ✓CA	1A correct numerator 1A correct denominator 1M percentage calculation 1CA simplification (4)	D L2
		[29]	

QUESTION/*VRAAG* 4 [34 MARKS/*PUNTE*]			
Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
4.1.1	Tariff/*Tarief* ✓✓A It is a service charge that the city charges for the use of service it renders such as water or electricity. *Dit is 'n diensfooi wat deur die stad gehef word vir dienste gelewer, bv water en elektrisiteit.*	2A explanation/ *verduideliking* (2)	F L1
4.1.2	41,01R/kl ✓✓A	2A correct tariff (2)	F L1

4.1.3	Total amount/*Totale bedrag*
	$150k\ell \times 95\%$ ✓MA
	$= 142,50k\ell$ ✓A
	
	$0,00 \times 6$ ┐✓MA $= 0,00$
	$20,28 \times 4$ ┤ $= 81,12$ ┐✓CA
	$21,17 \times 5$ ┤ $= 105,85$
	$29,68 \times 5$ ┘ $= 148,40$ ┘
	$41,01 \times 10$ ┐ $= 410,10$ ┐
	$44,86 \times 10$ ┤ $= 448,60$ ┤✓CA
	$56,59 \times 10$ ┤ $= 565,90$
	$60,65 \times 92,5$ $= 5\,610,13$ ┘
	            7 310,10 ✓MCA
	
	R7 310.10 + R28,32 (fixed cost) ✓MCA
	$= R7\,398,42$
	$R7\,398,42 \times 115\%$
	$= R8\,508.18$ ✓CA
		1MA multiplying correct $k\ell$ with 95%
		1A number of kl
		
		1MA Multiplying correct values
		1CA simplification
		
		1CA simplification
		
		1MCA answer all values added
		1MCA adding fixed cost
		
		1CA answer with VAT included
		                            (8)
			F
			L3

4.2.1	Medical credit/*Mediese krediet* (R310 + R310) +R209 ✓MA R620 + R209 ✓A R829 × 12 ✓MA $= R9\,948$ ✓A	1MA correct credits 1A simplification 1MA multiplying by 12 1A correct credit (4)	F L2

4.2.2	R29 470 × 12
	R353 640 ✓MA
	      ✓ MA
	  R70 352 + 31% (R353 640 – R337 800) ✓MA
	R70 352 + 31% (R15 840)
	R70 352 + R4 910,40
	      ✓A
	R75 262,40 – R15 714 (rebate) ┐
	R59 548,40 – R9 948 (medical aid) ┤✓MA
	R49 600,40 ✓A ┘
	His statement is incorrect/ *Hy is nie korrek nie* ✓O
		1MA annual taxable amount
		1MA substitution annual amount
		1MA correct tax bracket
		
		1A simplification
		1MA subtracting rebate and medical aid credit
		1A answer
		1O conclusion (7)
			F
			L4

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
4.3.1	$5 + 7 = 12$ ✓MA $\frac{5}{12} \times$ R106 265 = R44 227,08 ~ Kally ✓MA ✓A $\frac{7}{12} \times$ R106 265 = R61 987,92 ~ Kristen ✓A	1MA adding ratios 1MA multiplying amount by ratio 1A correct amount Kally 1A correct amount Kristen (4)	F L2
4.3.2	Q2 $= \frac{210614 + 26\ 095}{2}$ $= 23\ 856$ ✓A Q1 $= \frac{9\ 846 + 13\ 506}{2}$ ✓MA $= 11\ 676$ ✓A Q3 $= \frac{36\ 037 + 41\ 524}{2}$ $= 38\ 780,50$ ✓A IQR = Q3 – Q1 $= 38\ 780,50 – 11\ 676$ ✓MA $= 27\ 104,50$ ✓A Yes, his statement is correct. ✓O *Ja, sy stelling is waar.*	1MA quartile 2 answer 1MA concept of quartile correct values divided by 2 1A correct quartile 1 1A correct quartile 3 1CA subtracting quartile 1 from 3 1A correct IQR 1O conclusion (7)	D L4
		[34]	

QUESTION/*VRAAG* 5 [26 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
5.1	Michaelhouse ✓✓A	2A correct school/ *korrekte skool* (2)	F L2
5.2	Day school fees/*Dag skoolfonds* ✓MA R287 558 − R124 632 =R162 926 ✓A	1MA subtracting correct values 1A correct school fees (2)	F L1
5.3	Boarding fees/*Koshuisgelde* ✓RT $\dfrac{116\ 531}{284\ 189}$ × 100% ✓RT = 41% ✓A	1RT correct numerator 1RT correct denominator 1A correct percentage (3)	F L2
5.4	$\dfrac{7}{10}$ ✓RT ✓RT = 70% ✓A	1RT correct numerator 1RT correct denominator 1A correct percentage (3)	F L2
5.5	Total school fees per month/*Totale skoolgelde per maand* R291 000 × 2 = R582 000 ✓MA R582 000 + R303 600 = R885 600 ✓MA R885 600 × 60% ✓MCA = R531 360 ✓CA R885 600 − R531 360 R354 240 ✓CA R354 240 ÷ 10 ✓MCA ✓CA R35 424 per month/*per maand* **OR/*OF***	1MA multiplying correct value with 2 1MA adding correct value 1MCA multiplying with 60% 1CA correct value 1CA subtracting correct values 1MCA dividing answer by 10 1CA correct school fees per month	F L3

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
5.5	Total school fees per month/*Totale skoolgelde per maand* R291 000 × 2 = R582 000 ✓MA R582 000 + 303 600 = R885 600 ✓MA 100% − 60% = 40% ✓MCA 40% × R885 600 ✓MCA = R354 240 ✓CA R354 240 ÷ 10 ✓MCA ✓CA = R35 424 per month/*per maand*	1MA multiplying correct value with 2 1MA adding correct value 1MCA subtracting 60% from 100% 1MCA multiplying with 40% 1CA correct value 1MCA dividing answer by 10 1CA correct school fees per month (7)	
5.6	R885 600 × 60% = R531 360 ✓MA £27 500 × 19,4020 R533 555 ✓MA R533 555 − 531 360 ✓MCA = R2 195 ✓CA Yes, R2 195 more than needed *Ja, R2 195 is meer as voldoende*	**CA from 5.1.5** 1MA multiply total amount with 60% 1MA multiply £27 500 with exchange rate 1MCA subtract two values from one another 1CA correct difference. (4)	F L2
5.7	Interest received after 2 years/ *Rente ontvang na 2 jaar* ✓MA ✓MA R250 000 × 106,25% = R265 625 ✓A R265 625 × 107,25% = R284 882,8125 ✓MCA R284 882,8125 − R250 000 ✓MCA ✓CA = R34 882,81 No, his estimation is not correct. ✓O **OR/OF**	1MA adding 6,25% to 100% 1MA multiplying correct value with 106,25% 1A correct answer 1MCA multiplying answer with new % 1MCA subtracting original amount 1CA correct answer/*korrekte antwoord* 1O conclusion/ *samevatting*	F L4

R250 000 × 6,25% = R15 625 ✓MA R250 000 + R15 625 ✓MA = R265 625 ✓A R265 625 × 7,25% = R19 257,8125 R265 625 + R19 257,8125 = R284 882,8125 ✓MCA R284 882,8125 – R250 000 ✓MCA = R34 882,81 ✓CA No, his estimation is not correct. ✓O *Nee, sy bewering is nie korrek nie.*	1MA multiplying with 6,25% 1MA adding answer to original amount 1A correct answer/*korrekte antwoord* 1MCA multiplying answer with new % and adding 1MCA subtracting original amount 1CA correct answer/*korrekte antwoord* 1O conclusion/*samevatting* (7)	
		[28]
	TOTAL:	**150**