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

Stanmorephysics

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

Copyright reserved

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.

Stanmorephysics

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.

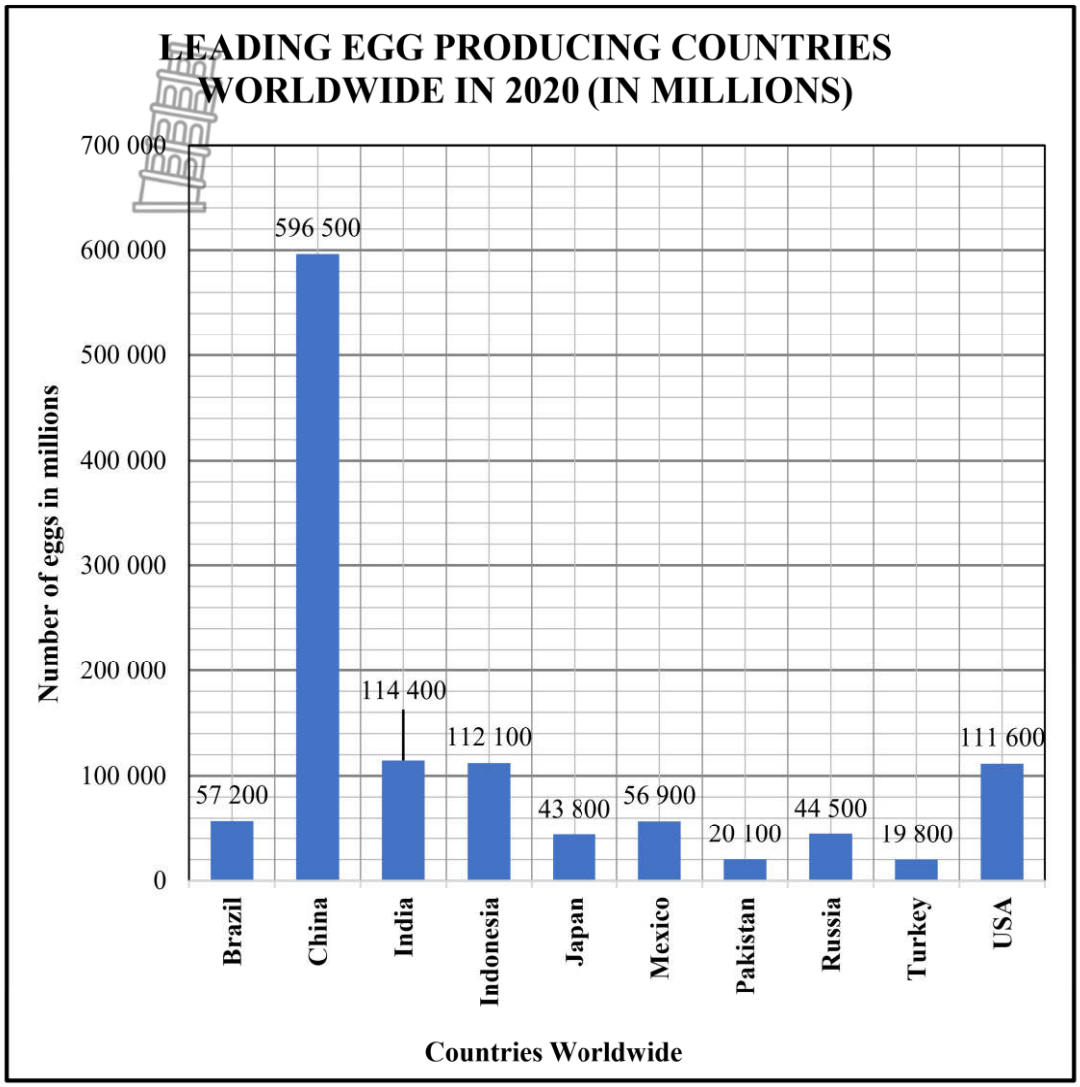
Determine the number of eggs they use in February. (3)

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)

Copyright reserved

1.2 Statistics are collected of leading egg producing countries worldwide.



[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]

Copyright reserved

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:

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

(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	

Stanmorephysics

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)
[30]

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)

Copyright reserved

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)
[28]

TOTAL: 150

Stanmorephysics

Copyright reserved