KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

# NATIONAL SENIOR CERTIFICATE

## GRADE 11



# MATHEMATICAL LITERACY P1

## COMMON TEST

## JUNE 2023

Stanmorephysics.com

**MARKS: 75**

**TIME: $1\frac{1}{2}$ hours**

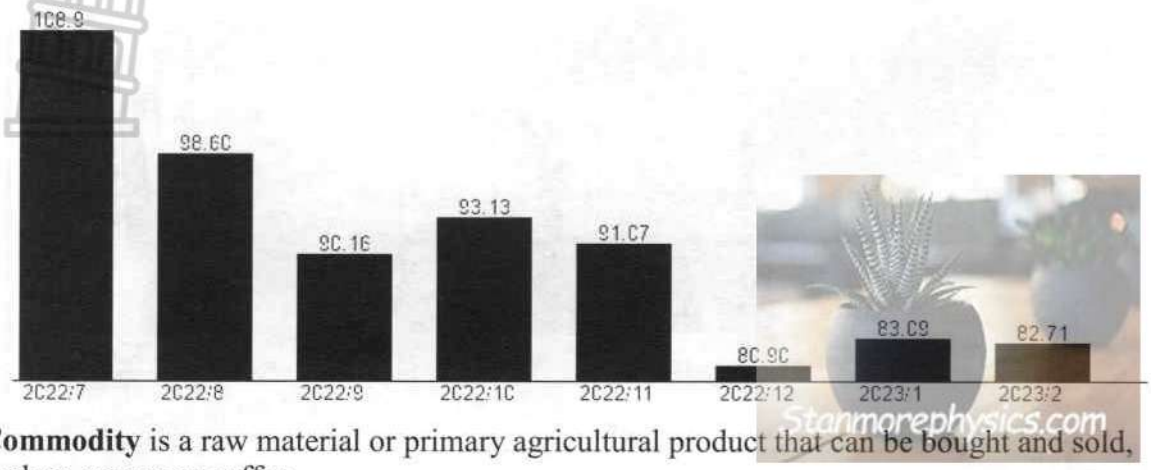
**This question paper consists of 8 pages and an addendum with 2 annexures.**

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## QUESTION 1

1.1 The graph below shows the commodity indicator of crude oil in USD per barrel from July 2022 to February 2023.

**CRUDE OIL PER BARREL IN USD ($)**




**Commodity** is a raw material or primary agricultural product that can be bought and sold, such as copper or coffee.

[source: https://www.theglobaleconomy.com/world/brent_oil_prices/]

Use the graph above to answer the questions that follow.

1.1.1 Identify the name of the graph used to represent the information above. (2)

1.1.2 Determine the difference between the highest value and the lowest of the crude oil per barrel in USD ($). (2)

1.1.3 Write in a simplified ratio the value of the barrel in August 2022 to the value of the barrel in January 2023. (2)

1.2 Molly works as an administrator and earns a gross salary of R15 000 per month, she contributes 1% of her gross salary towards UIF. She also spends 30% of her gross salary on groceries for her family.

1.2.1 Write out UIF in full. (2)

1.2.2 Determine the probability of her UIF contribution as a percentage. (2)

1.2.3 How much does she spend on groceries per month? (2)

1.3 According to SARS, the tax revenue collected was R1 563,8 billion in 2021/22 of which 25% was Value Added Tax.

1.3.1 Write down R1 563,8 billion as an ordinary amount without the decimal comma. (2)

1.3.2 Determine the VAT revenue in rands that was collected in 2021/22. (2)

**[16]**

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## QUESTION 2

2.1 Mr. Laggon received the tax invoice from Tom Green Handy's company for a bathroom upgrade in his home. ANNEXURE A shows the tax invoice he received.

**Picture of Mr. Laggon's remodeled bathroom**




[adapted from https://kitchenandbathshop.com/bathroom-remodel-cheap]

Use ANNEXURE A and the information above to answer the questions that follow.

2.1.1 Explain what will happen if Mr. Lagoon pays for the invoice on the 14th of May 2023. (2)

2.1.2 Show by calculations how the cost of labour of $950 was calculated. (2)

2.1.3 Give ONE possible reason why the tax registered number has some missing values and write the example of a completed tax registration number. (2)

2.1.4 Calculate to the nearest rand the total due on this invoice, if the exchange rate is R1 costs $0,70532 at times. (3)

2.1.5 Tom Green Handyman increased the labour cost per hour by 8,45%. Determine the new unit price for labour cost after the increase. (3)

2.2 Mr. Laggon downloaded TWO shower rates and bath costs for saving water in order to compare the consumption for his household budget.

**Standard shower-head, low flow shower- head and bath costs**




[adapted from https://poweroptimal.com]

Study the information above and answer the question that follows.

2.2.1 Calculate the percentage change between a 10-minute shower and a 6-minute shower.
You may use the following formula:

(3)

$$\textbf{Percentage change} = \frac{\text{Amount for 10 min - Amount for 6 min}}{\text{Amount for 6 min}} \times 100\%$$

2.2.2 The average price for electricity across major metropolitan municipalities in South Africa is R3,12 per kwh. If the 10-minute shower uses 5,8 kwh of energy per shower taken, calculate the total cost of taking 60 showers. (3)

2.2.3 Mr. Laggon states that a 10-min shower will use more water than the other options, if a full bath or shower is taken. Verify his statement by showing all calculations. (4)

**[22]**

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## QUESTION 3

3.1 Below is the report showing thousands of South Africans face salary reductions and retrenchments. The cost of accommodation in the country's major cities is still on the rise.

**Table 1: South African major cities' average rent and average salaries.**

| City | Average Rent | Average Salary | % of Salary Spent on Rent |
|---|---|---|---|
| Pretoria | R6,500 | R33,000 | 19% |
| Johannesburg | R8,000 | R37,000 | 20% |
| Cape Town | R10,000 | R38,000 | 27% |
| Durban | R7,500 | R31,000 | 24% |
| Bloemfontein | R4,500 | R30,000 | 15% |
| Nelspruit | R5,600 | R29,000 | 19% |
| Port Elizabeth | R5,000 | R28,000 | 20% |
| Rustenburg | R5,500 | R32,000 | 17% |
| Polokwane | R5,000 | R30,000 | 16% |
| Kimberly | R4,500 | R22,000 | 20% |

[adapted from https://businesstech.co.za/news/business/427080/salary-vs-rent/]

Use the information and Table 1 above to answer the questions that follow.

3.1.1 Identify the city with the third-lowest percentage spent on rent. (2)

3.1.2 Determine the range of average salary in South Africa. (2)

3.1.3 Calculate the mean average rent. (3)

3.1.4 Determine the median average salary, hence explain what the answer means. (4)

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3.2 Study the extract of the payslip below and answer the questions that follow.

| Employee Name: **Ms. S. Msweli** | | Employee No. | **200854** |
|---|---|---|---|
| Department | Centre of Research | **Payment date** | 25.05.2023 |
| Id number | 9907115566778 | | |
| | | | |
| Earning | **Amount** | **Deduction** | **Amount** |
| **Cash Salary** | R41 435,90 | Total Tax | R9 369,08 |
| | | UIF E contribution | R 148,78 |
| | | MA, Discovery Health | R2 007,00 |
| | | Parking levy | R 79,65 |
| | | Vitality | R 219,06 |
| **TOTAL EARNINGS** | R41 435,90 | Total deductions | R11 823,45 |
| | | NET PAY: **R**_____ | |

[adapted from www.hr.uct.ac.za]

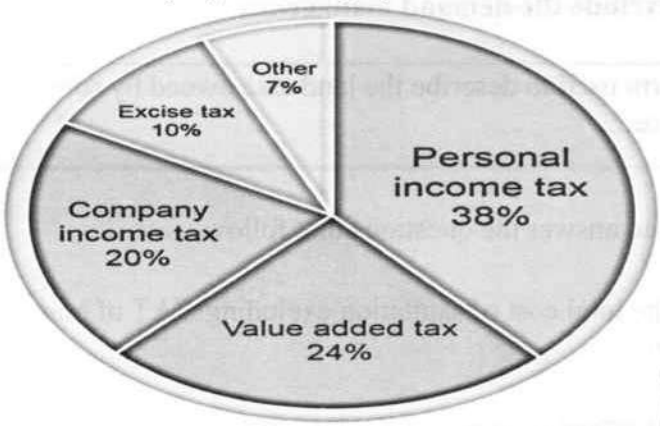
3.2.1 Define the term *gross salary* according to the given context. (2)

3.2.2 Determines employee's net salary for the month. (2)

3.2.3 In which department does the employee work? (2)

3.3 The graph below shows the National government tax collection percentage breakdown of Tax (R1,22 billion) in 2017/18 tax year.

**Percentage breakdown of tax (R1,22 billion) by National Government in 2017/18**




[adapted from www.statsa.gov.za/]

3.3.1 Identify the mathematical error on the given chart and give a possible reason for this error. (3)

3.3.2 Calculate the amount of company income tax collected by the government in 2017/18. (2)

**[22]**

## QUESTION 4

4.1 Johannesburg Water uses an increasing block tariff for the water service. The entity currently provides 6kl for free to all residential customers and the demand management levy is charged to all customers.

ANNEXURE B shows the domestic water tariff prepayment meter. All prices in the graph exclude VAT at 15% and exclude the water demand management levy of R31,08.

Use ANNEXURE B and the information above to answer the questions that follow.

4.1.1 State whether the number of kilolitres consumed will represent discrete or continuous data, Give a reason for your answer. (2)

4.1.2 Use the graph in ANNEXURE B to calculate the total cost of consuming 28,3kl including VAT. (5)

4.2 The municipality charges the following sanitation tariff for private dwellings domestics.

**TABLE 2: SANITATION TARIFF FOR PRIVATE DWELLINGS**

| **SANITATION TARIFFS:** | **Private Dwelling Domestic** |
|---|---|
| **ERF ($m^2$)** | **2022/2023 Tariff (R/erf/month)** |
| Up to and including 300 $m^2$ | 267,32 |
| Larger than 300 $m^2$ to 1000 $m^2$ | 520,38 |
| Larger than 1000 $m^2$ to 2000 $m^2$ | 787,24 |
| Larger than 2000 $m^2$ | 1134,28 |
| **Prices illustrated exclude the demand management levy of R274,36 &VAT@15%** | |

- **ERF** is the term used to describe the land size owned by someone and registered in a deed office.

Use TABLE 2 above to answer the questions that follow.

4.2.1 Determine the total cost of sanitation excluding VAT of households with an ERF size of 820$m^2$. (2)

4.2.2 Calculate the probability as a percentage that the tariff per ERF is below R800. (3)

4.2.3 According to the demographic city of Johannesburg in the 2019/2020 data analysis, there were 1 035 375 households and 892 277 were using flushed toilet-public sewage. The municipality councillor indicates that 88,6 percent of the households used flush toilets in 2019/2022. Verify this statement by showing all calculations. (3)

**[15]**

**TOTAL MARKS:75**

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**ANNEXURE A**

**QUESTION 2.1**

# Tax Invoice

**TOM GREEN HANDYMAN**
**5 Mhlanga Street, White City, 4700**
**Telephone:0800 *** ***

| | | | |
|---|---|---|---|
| **Date** | **06/05/2023** | **Invoice number :** | **0003521** |
| | | **Tax Registered No :** | **8530**** |
| **Mr Laggon**<br>**Meva 2002**<br>**White City**<br>**4700** | | | |
| | **TAX INVOICE** | | |
| Quantity | **Description** | **Unit price** | **Cost ($)** |
| 23.75 | **Labour** | **40** | **950** |
| 50 | **Nails and screws** | **0,80** | **40** |
| 1 | **Paint and Plywood** | **1000** | **1000** |
| 40 | **Imported wall tiles** | **14** | **560** |
| 1 | **Freight** | **150** | **150** |
| 1 | **Sub-contractor: Tile-it** | **228** | **228** |
| | | | |
| | | **Subtotal** | **2928** |
| | | **Tax** | **439,20** |
| | | **Total due** | **$3 367,20** |

Payment is due by the 10th of the Month following the date of invoice.
Please make payments into Bank account No. 9876 **** 0321

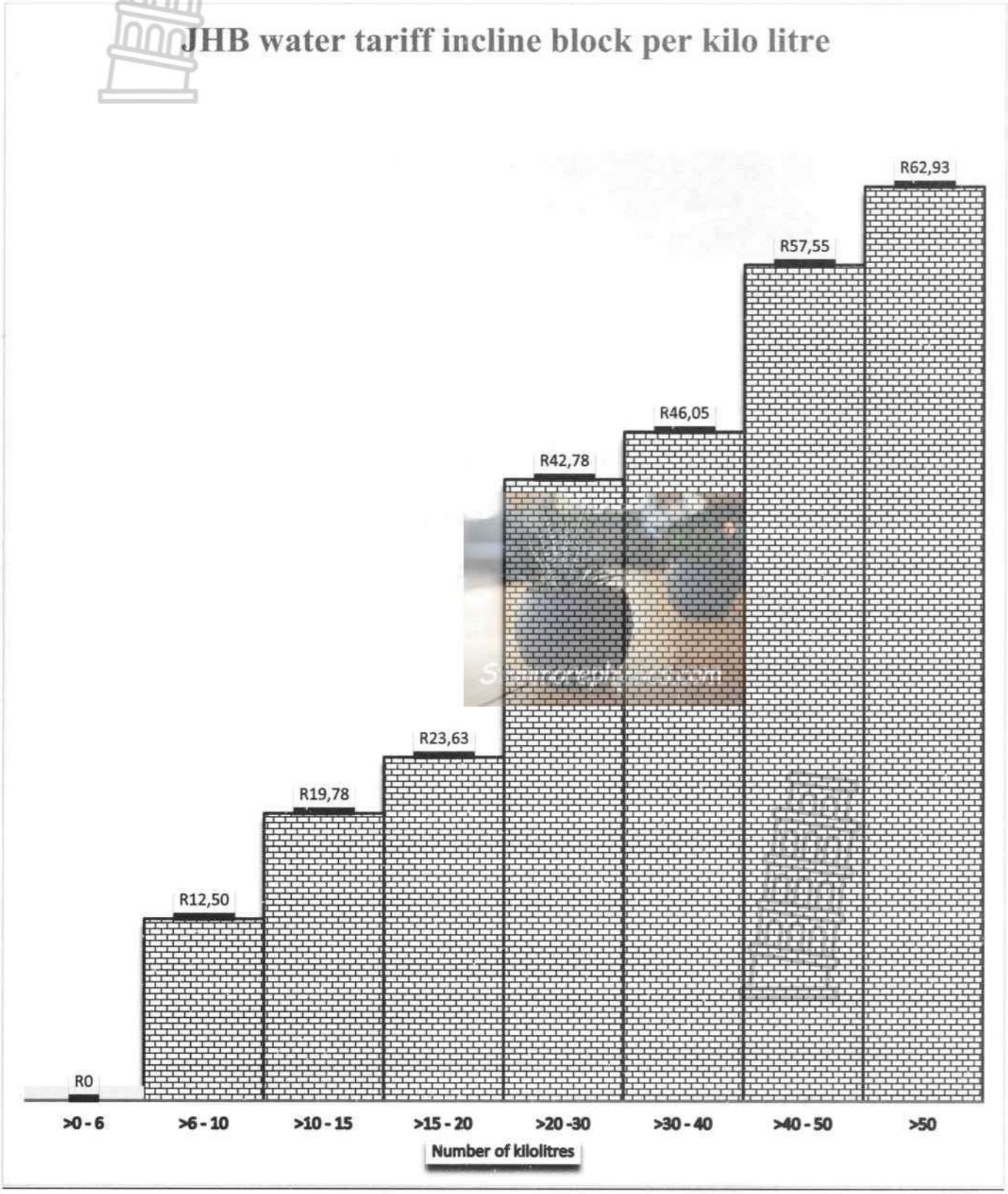
An interest of 10% will be charged on late payments

[Adapted from https://www.pdffiller.com]

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**ANNEXURE B**

**QUESTION 4.1**




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