



education

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North West Department of Education
NORTH WEST PROVINCE**

PROVINCIAL ASSESSMENT

GRADE 11

MATHEMATICAL LITERACY P1

NOVEMBER 2019

MARKS: 100

TIME: 2 hours

This question paper consists of 11 pages including 1 annexure and 1 answer sheet.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL the questions.
2. 2.1 Use the ANNEXURE in the QUESTION PAPER to answer QUESTION 2.
2.2 Answer QUESTION 5.8 on the ANSWER SHEETS attached.
3. Number the answers correctly according to the numbering system used in the question paper.
4. An approved calculator (non- programmable and non- graphical) may be used, unless stated otherwise.
5. ALL the calculations must be clearly shown.
6. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
7. Units of measurement MUST be indicated, where applicable.
8. Diagrams are NOT necessarily drawn to scale, unless stated otherwise.
9. Write neatly and legibly.

QUESTION 1

1.1

Koos was given a cooler box for his birthday with a capacity of 26 000 ml.

1.1.1 Identify from A-C the statement that best refers to the capacity of the cooler box.

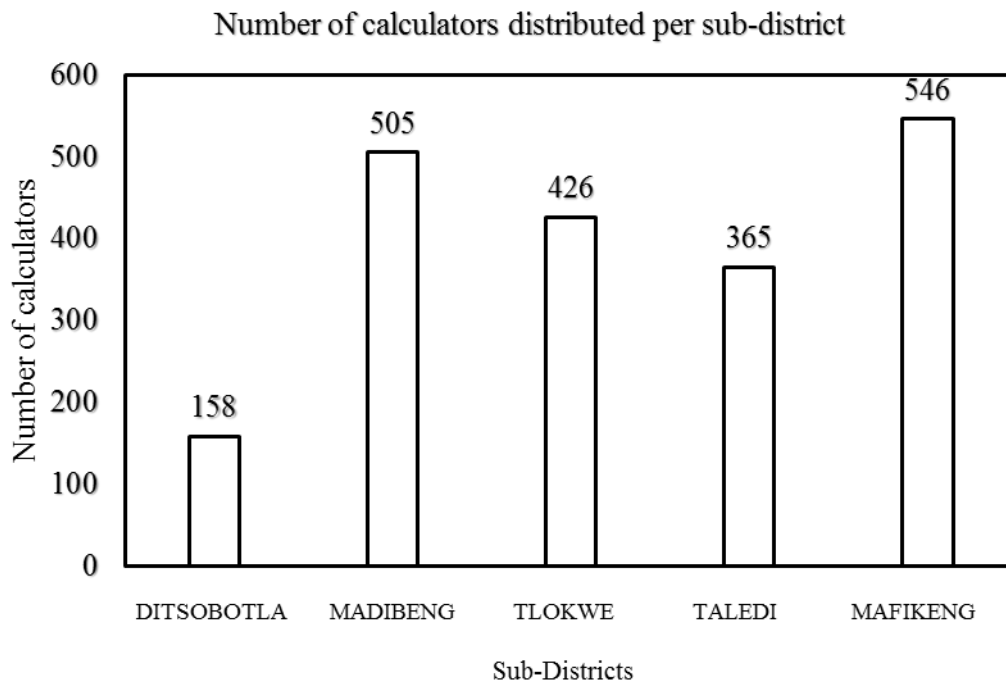
- A The quantity measured in cubic units that express the extent of a two dimensional figure.
- B The amount of substance that the cooler box can hold.
- C The space taken by the cooler box in cubic units. (2)

1.1.2 Convert 26 000 ml to litres. (2)

1.2

The North West Department of Education bought standard function calculators for some sub-districts.

The graph below illustrates the distribution of calculators among these sub-districts.



Use the information above to answer the questions that follow.

1.2.1 Write down the number of sub-districts that received calculators. (2)

- 1.2.2 Name the district that was allocated second lowest number of calculators. (2)
- 1.2.3 Arrange data of the education sub-districts in ascending order. (2)
- 1.2.4 Determine the total number of calculators bought by the North West Department of Education. (2)

1.3

TABLE 1 below indicates the exchange rate between South Africa and some other high ranking countries as off October 02, 2017 at 09:00.

TABLE 1: EXCHANGE RATE BETWEEN SA AND SIX OTHER COUNTRIES

Exchange rate of SA and six other countries	
Date: October 02, 2017	Time: 09:00
CURRENCY	ZAR PER UNIT
US Dollar	13,608770
European Euro	15,984219
British Pound	18,120130
Indian Rupee	0,207847
Australian Dollar	10,630196
Canadian Dolar	10,881951

[Source: www.x-rate.com]

Use the information above to answer the questions that follow.

- 1.3.1 On which day was the exchange rate recorded? (2)
- 1.3.2 Write down the amount in rand that is equal to 1 US Dollar. (2)
- 1.3.3 Name the currency used in Britain. (2)
- 1.3.4 Express R15,984219 as a whole number. (2)

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QUESTION 2

2.1

Valley High School received an electricity account statement for the school from the Khara Hais Municipality. ANNEXURE shows an adapted version of the account statement with some values and amounts omitted.

Use ANNEXURE to answer the questions that follow.

- 2.1.1 Write down the name of the account holder. (2)
- 2.1.2 Determine the total basic levy amount payable, excluding VAT. (2)

- 2.1.3 Show how the amount of R21 160,43 was calculated. (2)
- 2.1.4 Show how VAT amount of R7 639,55 was calculated. (3)
- 2.1.5 Calculate the tariff **P** that the municipality charged for kVA. (2)
- 2.1.6 Calculate the value of **Q**, account balance. (2)
- 2.1.7 Accounts unpaid on the date payable are subject to interest at a rate of 10% per annum, compounded monthly. Assume that this account was only paid on 15 December 2017.

Calculate the total amount payable, including interest. Show ALL calculations. (3)

2.2

The Khara Hais Municipality published their financial statements for the years ended June 2017 and June 2018 for different departments of the municipality, labelled A to G, as shown in TABLE 2 below.

TABLE 2: FINANCIAL PERFORMANCE OF DEPARTMENTS FOR THE YEARS ENDED JUNE 2017 AND JUNE 2018.

DEPARTMENTS	2017		2018		
	INCOME IN RAND	EXPENDITURE IN RAND	INCOME IN RAND	EXPENDITURE IN RAND	SURPLUS OR DEFICIT IN RAND
A	48 388 125	29 610 185	65 771 447	28 490 095	37 281 352
B	1 609 653	52 554 248	4 198 816	57 060 221	52 861 405
C	1 308 286	4 998 399	1 216 484	4 607 201	3 390 717
D	6 855 006	9 932 644	6 151 138	7 254 832	1 103 694
E	6 979 909	22 447 349	6 530 785	23 375 380	16 844 595
F	39 770 950	41 774 804	46 764 108	52 237 114	5 473 006
G	21 231 361	30 645 928	4 505 986	33 031 602	28 525 616

Use TABLE 2 above to answer the questions that follow.

- 2.2.1 Explain the concept *surplus*. (2)
- 2.2.2 Write down the 2017 expenditure amount for Department B in words. (2)
- 2.2.3 Identify the department that showed a surplus in 2018. (2)

- 2.2.4 Calculate the percentage difference (rounded off to the nearest whole percentage) in the income of Department F from 2017 to 2018, using the following formula:

$$\% \text{ difference} = \frac{\text{income 2018} - \text{income 2017}}{\text{income 2017}} \times 100\% \quad (3)$$

- 2.2.5 Calculate the probability (expressed as decimal) of randomly selecting a department that had an expenditure of less than 30 million rand in 2018. (3)
[28]

QUESTION 3

3.1

The athletic coach uses BMI (body mass index) calculations to advise athletes about suitable diets.

TABLE 3 below shows the BMI and corresponding weight status.

TABLE 3: BMI AND CORRESPONDING WEIGHT STATUS

	WEIGHT STATUS				
	UNDER WEIGHT	NORMAL	OVER WEIGHT	OBESE	EXTREMELY OBESE
BMI (in kg/m ²)	0 – 18,4	18,5 – 24,9	25 – 29,9	30 – 34,9	35+

Cassy has a height of 6 feet, 3 inches and his present BMI is 28,5 kg/m².

The following conversion may be used: **1 foot = 12 inches.**

[Source: www.weightwatch.com]

Use TABLE 3 and the information above to answer the questions that follow.

- 3.1.1 State Cassy's present status. (2)
- 3.1.2 Determine the height of Cassy in inches. (2)
- 3.1.3 Cassy followed the diet advise of his coach to achieve a desired weight of 200 pounds.

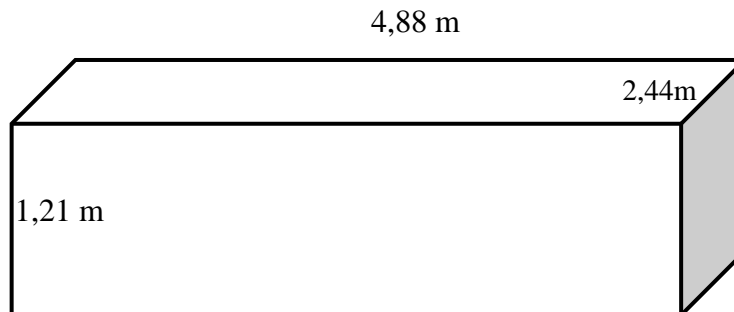
Calculate Cassy's new BMI (rounded off to the nearest whole number) based on this desired weight.

You may use the following formula:

$$\text{BMI (kg)} = \frac{\text{weight in pounds}}{(\text{height in inches})^2} \times 703 \quad (3)$$

3.2

Cassy decided to have a rectangular swimming pool installed at home. He must use a special paint inside the pool. The paint is sold in 500 ml cylindrical tins. The dimensions of the pool are shown below.



Note: 1 ml = 1 cm³

[Source: www.rempros.com/dimensions/swimming_pool]

Use the information above to answer the questions that follow.

3.2.1 Calculate the volume of the swimming pool.

You may use the formula:

$$\mathbf{Volume = length \times breadth \times height} \quad (2)$$

3.2.2 Calculate the total surface area (SA) of the inside walls of the pool that must be painted.

You may use the formula:

$$\mathbf{SA = l \times b + 2[l \times h + b \times h]},$$

$$\mathbf{where l = length, b = breadth and h = height} \quad (4)$$

3.2.3 Calculate the height (rounded off to the nearest cm) of the cylindrical paint tin with the radius of 3,77 cm.

You may use the following formula and conversion:

$$\mathbf{Height\ of\ cylinder = \frac{volume}{\pi \times (radius)^2},\ using\ \pi = 3,142} \quad (3)$$

[16]

QUESTION 4

A map illustrating part of South Africa and neighbouring countries is given below.

A MAP ILLUSTRATING PART OF SOUTH AND NEIGHBOURING COUNTRIES



Use the map above to answer the questions that follow.

- 4.1 Name the scale used on the map. (2)
 - 4.2 Write down any two national roads that are shown on the map. (2)
 - 4.3 Write down the two neighbouring countries shown on the map. (2)
 - 4.4 Identify the position of Swaziland relative to Kruger National Park. (2)
 - 4.5 Determine the scale of the map in the form **1:....** (3)
- [11]**

QUESTION 5

South Africa is *YOUNG AND FEMALE*. That's according to Statistics South Africa mid-year population estimate report, released on Monday, 23/07/2018.

TABLE 4 below shows the assumptions of expectation of life at birth without HIV/AIDS from 2002 to 2018 in South Africa.

TABLE 4: THE ASSUMPTIONS OF EXPECTATION OF LIFE AT BIRTH WITHOUT HIV/AIDS FROM 2002 TO 2018 IN SOUTH AFRICA.

YEAR	Life expectancy at birth without HIV/AIDS(age in years)	
	MALE	FEMALE
2013	63,4	70,1
2014	63,5	70,2
2015	63,6	70,2
2016	64,0	70,6
2017	64,5	71,3
2018	64,5	71,6

[Source: <https://m.news24.com>]

Use TABLE 4 above to answer the questions that follow.

- 5.1 What is the slogan of South Africa according to Statistics South Africa? (2)
- 5.2 Is the data given discrete or continuous? (2)
- 5.3 Identify the year in which the difference in life expectancy at birth without HIV/AIDS between the males and females was the highest from 2002 to 2008. (2)
- 5.4 Write down the modal life expectancy at birth without HIV/AIDS for the females. (2)
- 5.5 Calculate the difference of life expectancy at birth without HIV/AIDS for the males between 2013 and 2018. (2)
- 5.6 Determine the median life expectancy at birth without HIV/AIDS for the males. (2)
- 5.7 Calculate the average life expectancy at birth without HIV/AIDS for the females. (3)
- 5.8 Draw a line graph illustrating the life expectancy at birth without HIV/AIDS for the females from 2013 to 2018 on the ANSWER SHEET provided. (7)
- 5.9 Determine the probability (as a percentage) of randomly choosing a female with life expectancy at birth without HIV/AIDS of less than 71 years. (3)

[25]

TOTAL: 100 MARKS

ANNEXURE**QUESTION 2****ADAPTED ELECTRICITY ACCOUNT STATEMENT**

TAX INVOICE		//KHARA HAIS MUNICIPALITY	
VAT registration number: 45689873200		Tel: 054 567 8413 Fax: 054 325 8416 Private Bag X6003, Thahitsi, 4499	
Account month: October 2017	Issued on: 2017/10/22 Tax invoice number: 1509336852 Account number: 31823303265000		
Account holder: Valley High School	Street address: 10 th Street, Thahitsi		
Postal address: P.O. Box 234 Thahitsi 4499	Township: Thahitsi X01	Stand no: 2322	
	Meter reading dates: 2017/09/12 and 2017/10/09		
Account and invoice details			
			Amount in rand
Balance brought forward			25 142
Payment received on 02 October 2017			0,00
Electricity			
Basic levy:			
➤ Three-phase (commercial)	(1×2 105,89)	2 105,89	
➤ Three-phase (transformer)	(1×2 158,50)	2 158,50	
kWh:			
PREVIOUS reading: 1159863	NEW reading: 1193435		
kWh used: 33 572	Rate: R0,6303/kWh	21 160,43	
kVA:			
kVA used: 141	(141×P)	25 505,49	
VAT (15%)			7 639,55
2017/10/18 Cash rounding			-0,06
ACCOUNT BALANCE			Q
*Payable on 15 November 2017			Q
Banking details: ABSA Bank, account number: 659999999 Use the municipal account number as reference.			

*Accounts unpaid on the date payable are subject to interest charged at a standard rate of 10% per annum, compounded monthly and services will be suspended. Please notify the municipality in writing of the termination of any services, in order to avoid being held responsible for any costs.

- kWh (kilowatt hour) is the unit of three-phase electricity.
- kVA (kilovolt-ampere) is the unit for transformer electricity.

ANSWER SHEET

NAME:.....

CLASS:.....

QUESTION 5.8

