

**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

**MATHEMATICAL LITERACY
(First Paper)
NQF LEVEL 2**

NOVEMBER 2011

(10401012)

**7 November (X-Paper)
09:00 – 12:00**

This question paper consists of 10 pages and 1 annexure.



TIME: 3 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
 2. Read ALL the questions carefully.
 3. Number the answers according to the numbering system used in this question paper.
 4. Clearly show ALL calculations, diagrams, graphs, etc you have used in determining the answers.
 5. An approved calculator may be used, unless otherwise stated.
 6. Drawing instruments including rulers, pairs of compasses and protractors may be used.
 7. Diagrams are not necessarily drawn to scale.
 8. Write neatly and legibly.
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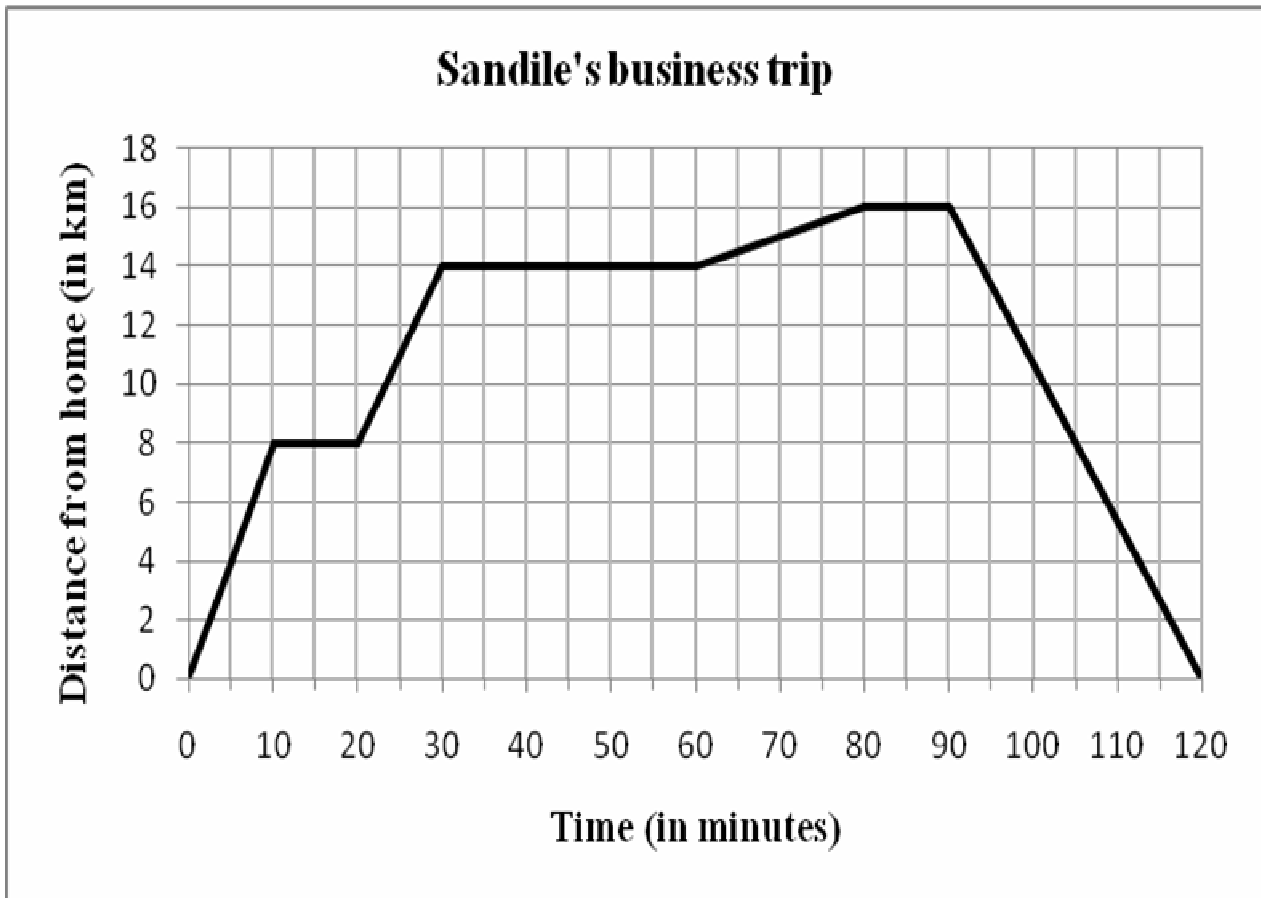
QUESTION 1

- 1.1 Calculate the following:
- 1.1.1 $35 + 12 \times 4$ (1)
- 1.1.2 $12 \times (3 + 2)$ (1)
- 1.1.3 $\frac{3}{4} + 1\frac{1}{2}$ (1)
- 1.1.4 $3,5 (7,45 - 3,95)$ (1)
- 1.1.5 $3^2 + \sqrt{16}$ (1)
- 1.2 Mpho travels from Port Shepstone to uShaka Marine World in Durban. Mpho left his house in Port Shepstone at 08:45 and arrived in uShaka Marine World at 10:06. How long was Mpho's journey in hours and minutes? (2)
- 1.3 A mother is taking her 3 children to uShaka Marine World. Calculate the total cost if the tickets are sold at R46,00 for adults and R15,00 for children. (2)
- 1.4 How many boxes does Zintle need if she can fit 4 donuts into a box and she has 45 donuts? (2)
- 1.5 Increase 1348 by 14%. (3)
- 1.6 The scale of a map is 1: 20 000. If the distance between two points on the map is 18 cm, calculate the actual distance (in km)?
- Use the following information:
- 1 m = 100 cm
- 1 km = 1 000 m (3)
- 1.7 Nelisiwe and Thobile received a total of R920 for the marketing activity that they did. Nelisiwe worked for 12 hours and Thobile for 8 hours.
- 1.7.1 Write down as a ratio the working hours of Nelisiwe to that of Thobile in its simplest form. (2)
- 1.7.2 Calculate how much Nelisiwe received if they were paid according to the ratio of their working hours. (3)

[22]

QUESTION 2

The graph below shows the distance that Sandile drives whilst performing his duties.



- 2.1 How far from home was he after 30 minutes? (1)
- 2.2 How many stops did Sandile make? How is this indicated in the graph? (2)
- 2.3 If Sandile left home at 08:30:
- 2.3.1 How far is the furthest point of duty from home and at what time did he arrive at that point? (2)
- 2.3.2 At what time did he arrive home? (1)
- 2.4 How long (in minutes) did it take him before he made the first stop? (1)
- 2.5 How long (in minutes) was his second stop? (2)
- 2.6 What was the total distance in kilometres of Sandile's trip? (2)

[11]

QUESTION 3

Study the bank deposit slip below and answer the questions that follow:

3 Third National Bank **Deposit slip**
Depositstrokie

Date **2008/08/22**
Datum (YJYJ-MM-DD)

Deposit to / Deponeer aan **T. HLEKISO**

Account number / Rekeningnommer
051816798

Telephone no. including dialling code / Telefoonno. en skakelkode **077 532 1908**

Signature / Handtekening *[Signature]*

Depositor's name or reference. These details will appear on the account holder's/beneficiary's statement
Naam van deponeerder of verwysing. Hierdie besonderhede sal op die rekeninghouer/bedeelde se staat verskyn
COLLEEN DAKS

Conditions
Cheques, etc. handed in for collection will only be available as cash when paid. While acting in good faith and exercising reasonable care the Bank will not accept responsibility for ensuring that depositors/account holders have lawful title to cheques, etc. collected. Please ensure that the account number is correctly inserted as the Bank cannot be held responsible for errors resulting from incorrect information furnished.
Voorwaardes
Tjeks ens. wat vir wisseling ingelewer is, sal slegs as kontant beskikbaar wees wanneer dit betaal is. Hoewel die Bank te goeder trou handel en redelike sorg uitoefen, kan hy nie verantwoordelikheid daarvoor aanvaar om seker te maak dat deponeerders/rekeninghouers regstittel het op tjeks ens. wat gewissel word nie. Maak asseblief seker dat die rekeningnommer korrek ingeskrif is. Die Bank kan nie aanspreeklik gehou word vir foute as gevolg van foutiewe inligting nie.

The Standard Bank of South Africa Limited (Reg. No. 1962/000738/06) An authorised financial services and registered credit provider (NCRCP15).
Die Standard Bank van Suid-Afrika Bepers (Reg.no. 1962/000738/06) 'n Gereguleerde finansiële dienster- en geregistreerde kredietverskaffer (NCRP15).

Teller's date stamp and signature / Teller se datumstempel en handtekening	Notes / Note	5000 -
	Coins/Munte	
	Postal/Money order / Posorders-/wissels	
	Total cash and postal/money orders / Totale kontant en posorders en-wissels	5000 -
/ Tjeks gedeponeer (Trekker se naam)		
1 NEW MUTUAL AGENTS		1500 -
2		
3		
4		
	Total cheques / Totale tjeks	1500 -
	Total	6 500 -00

- 3.1 What is the name of the bank? (1)
- 3.2 What is the name of the account holder into whose account the amount was deposited? (1)
- 3.3 Write down the following:
 - 3.3.1 The depositor's name. (1)
 - 3.3.2 The date on which the deposit was made. (1)
- 3.4 If the bank charges a fee on 1.03% on the total amount deposited, determine the bank fee charged for this transaction. (2)
- 3.5 Determine the amount deposited if the bank has charged a bank fee of R7,72. Use the formula: **Bank fee = Amount deposited × 0.0103** (3)

[9]



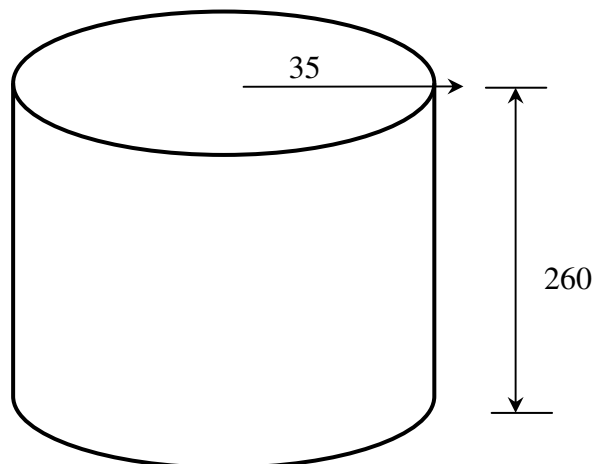
QUESTION 4

- 4.1 Choose an item from COLUMN B that matches a description from COLUMN A. Write only the letter (A - D) next to the question number (4.1.1 - 4.1.3) in the ANSWER BOOK.

COLUMN A		COLUMN B	
4.1.1	Area	A	it is a distance around a flat object, regardless of the shape
4.1.2	Perimeter	B	it is the amount of space it occupies, or the amount of space it contains
4.1.3	Volume	C	the total surface of any flat, curved or irregular region of a 2 – dimensional figure
		D	it is the physical size of an object in relation to space

(3)

- 4.2 The diagram below shows a cylindrical water tank with a height of 260 cm and a radius of 35 cm. All dimensions are given in centimetres.



- 4.2.1 Calculate the volume of the tank.
 Volume = $\pi \times r^2 \times h$ where h = height, r = radius and $\pi = 3.14$ (3)
- 4.2.2 If 1 litre = 1000 cm³, calculate how many litres of water one tank can hold. Round off to the nearest litre. (3)
- 4.2.3 If the tank is filled up to the 90% mark, calculate how much water in kilolitres is in the tank. Note: (1 kℓ = 1 000 ℓ) (2)

[11]

QUESTION 5

Sanele gathered the following information from learners in his class:

Name of learner	Height (m)	Weight (kg)	BMI (kg/m²)
Khosi	1,71	88	30,1
Mike	1,80	91	28,1
Sizwe	1,76	82	26,5
Florence	1,64	70	26,0
Heather	1,65	69	25,3
Pravesh	1,50	54	24,0
Zodwa	1,75	72	23,5
Ernest	1,66	63	22,9
Tahir	1,70	65	22,5
Cyanne	1,64	58	21,6
Alex	1,72	63	21,5

5.1 Use the data in the table above to determine the following:

5.1.1 The mean (average) weight. (3)

5.1.2 The median BMI. (2)

5.1.3 The mode in terms of the height. (1)

5.2 Sanele decides to turn the table into a more manageable form by compiling a frequency table.

CLASSIFICATION	TALLY	NUMBER OF LEARNERS (FREQUENCY)
Underweight (< 18,5)		
Normal weight (18,5 to < 25)		
Overweight (25 to < 30)		
Obese (\geq 30)		

5.2.1 Copy and complete the above frequency table in your answer book. (4)

5.2.2 Determine the percentage of learners classified as being of normal weight (18,5 to < 25). (3)

[13]



QUESTION 6

Sakhile is planning a Level 4 Graduation Gala Dinner and is searching for an appropriate venue. The Wild Coast Sun charges R500 per night for the venue and R50 per person.

Use the information to answer the questions that follow:

- 6.1 Determine the value of (A) and (B) (2)

Number of people	0	10	20	30	40	50	60	80	B
Cost for the Gala Dinner in Rand	500	1000	1500	2000	A	3000	3500	4500	6000

- 6.2 Write down a formula to determine the total cost of the Graduation Gala Dinner at the Wild Coast Sun. (2)
- 6.3 Use the formula or any other method to calculate the cost for 123 attendees at the Graduation Gala Dinner. (3)
- 6.4 Draw a line graph from the table above to show the cost in relation to the number of people. Use ANNEXURE A to draw the graph. (5)
- [12]**

QUESTION 7

The kitchen of a particular house is in the shape of rectangle with the following dimensions:

Length = 2,5 metres

Breadth = 3 metres

- 7.1 Calculate the area of the kitchen.
Formula: $\text{Area} = l \times b$ (2)
- 7.2 Determine the perimeter of the kitchen. (2)
- 7.3 25 cm × 25 cm square tiles will be used to tile the kitchen.
- 7.3.1 Calculate the area of each tile. Give your answer in square metres (m^2). (2)
- 7.3.2 Determine the minimum number of tiles required to tile the kitchen. (2)

[8]



QUESTION 8

The table below shows Mr Mathe's budget which lists his income and expenditure for a month.

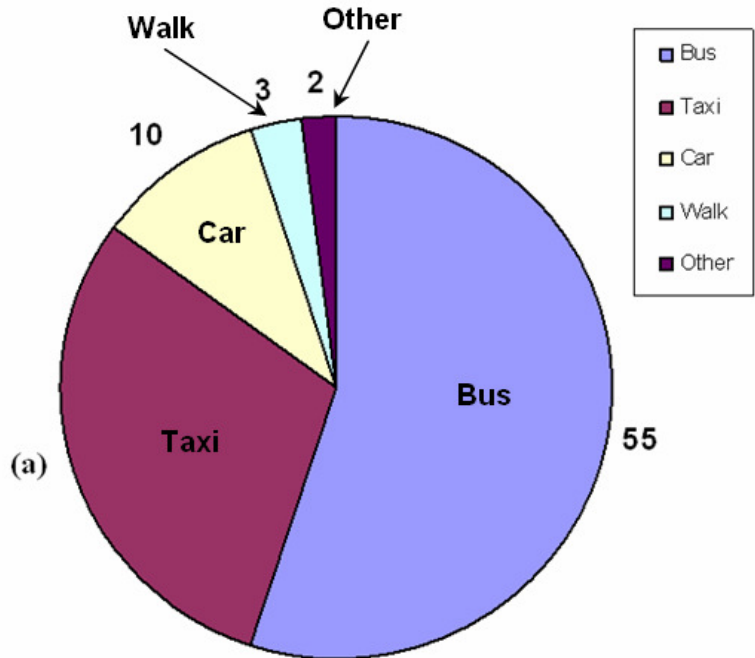
INCOME		EXPENDITURE	
Item	Amount	Item	Amount
Monthly Salary	R15 500	Home Loan Repayment	R 4 589
		Car Repayment	R 1 667
		Electricity	R 350
		Rates and Water	R 675
		Phone	R 380
		Cell Phone	R 250
		Clothing	R 500
		Satellite TV Subscription	R 489
		Entertainment	R 800
		Petrol	R 600
		Food	(a)
		Emergency Fund	R 1 200
		Savings	R 2 000
TOTAL	R15 500		R15 500

- 8.1 Calculate the value of (a), the amount budgeted for food. (2)
- 8.2 Calculate the percentage of his total budget that Mr Mathe spends on petrol. Round off your answer to one decimal place. (2)
- 8.3 The Governor of the Reserve bank increased the interest rate by 1,8%. Calculate Mr Mathe's new monthly home loan repayment. (3)
- [7]**



QUESTION 9

A survey was conducted on 350 learners on the mode of transport to they used to get to college. The following pie chart shows the percentages of the learners for each mode of transport.



- 9.1 What percentage of learners use a car to get to college? (1)
- 9.2 Determine the percentage of learners who take a taxi to get to college. (the value of a) (3)
- 9.3 Calculate the number of learners that walk to the college. (3)

[7]

TOTAL: 100

ANNEXURE A

EXAMINATION NUMBER:

QUESTION 6.4

