

### **Education**

KwaZulu-Natal Department of Education REPUBLIC OF SOUTH AFRICA

### **MATHEMATICAL LITERACY**

**COMMON TEST** 

**SEPTEMBER 2017** 

#### NATIONAL SENIOR CERTIFICATE

**GRADE 10** 

**MARKS: 75** 

TIME: 11/2 hours

This question paper consists of 10 pages.

#### INSTRUCTIONS AND INFORMATION

- 1. This question paper consists of FOUR questions. Answer ALL the questions.
- 2. Number the answers correctly according to the numbering system used in this question paper.
- 3. Start EACH question on a NEW page.
- 4. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
- 5. Show ALL the calculations clearly.
- 6. Round ALL the final answers off appropriately according to the given context, unless stated otherwise.
- 7. Indicate units of measurement, where applicable.
- 8. Write neatly and legibly.

- 1.1 Study the following definitions:
  - A Interest calculated on the initial principal and also on the accumulated interest of previous periods of a deposit or loan.
  - B A diagram of one room usually drawn to scale
  - C A fee that is charged by a lender to a borrower for the right to use the borrowed funds.
  - **D** The amount earned or charged, expressed as a percentage of principal invested or borrowed.
  - E The ratio of the size of a model or other representation, to the actual size of the object represented.
  - F Interest computed only on the principal (initial amount owed or invested).

Write down the letter of the definition which best matches the term below.

- 1.1.1 Interest rate (2)
- 1.1.2 Scale (2)
- 1.1.3 Floor plan (2)
- 1.1.4 Compound Interest (2)
- 1.2 The advertised alongside shows the cost of a camera including VAT.

  VAT in South Africa is calculated at

VAI in South Africa is calculated at 14% of the product.



1.2.1 Calculate the amount of savings on this camera. Use the formula:

Savings = Old Price - New Price (2)

- 1.2.2 Write down the acronym "VAT" in full. (2)
- 1.2.3 Calculate the amount of VAT included in the new selling price of R8 499 (3) [15]

Nicole is a student and has "Pay-as-you-transact'(PAYT) bank account at CT bank. On the 1 March 2017 the bank changed some of their fees. TABLE 1 below shows the 2016/2017 fee and the 2017/2018 fee. Some values in TABLE 1 are missing.

TABLE 1: C	CT-BA	NK 2017/18	KEY TR	ANSA(	CTION FEE
------------	-------	------------	--------	-------	-----------

Fee/Transaction	2016/17 Fee	2017/18Fee	Change
Withdrawal (Own ATM)	R5,50	X	9,1%
Withdrawal (Cash at till)	R1,30	R1,50	15,4%
Withdrawal (Other ATM)	R8,50	Y	0%
Withdrawal (International)	R50,00	R50,00	0%
Deposit (ATM)	80c per R100	90c per R100	12.5%
Account monthly fee (PAYT)	R5,25	R5,50	Z

http://businesstech.co.za

Use TABLE 1 to answer the questions that follow.

2.1.1 Determine the value of:

(a)	X		(3)
(b)	Y	# # 	(2)
(c)			(2)

2.1.2 Nicole needs to withdraw R200.

Write down the place that Nicole should withdraw the money so that she pays the minimum withdrawal fee possible.

(2)

(3)

(2)

2.1.3 Nicole deposited R2 000 into her account at the ATM on 30 June 2017.

Determine the amount that the bank charged her for this transaction.

2.1.4 Give one valid reason why banks charge people bank fees.

The assembly diagrams **NOT** in order labelled from A to F below, show how to assembly a car.

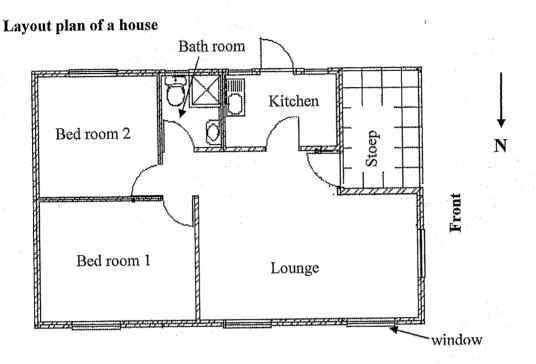
# 

Study the diagram and answer the questions that follow.

- 2.2.1 Arrange the diagrams in the order needed to assemble the car (4)
- 2.2.2 Give ONE valid reason why assemble instructions are given in diagram and not only in word form. (2)

  [20]

3.1 Mr Hlongwa intends painting his house. The sketch below shows the layout plan of the rooms in his house.



Study the layout plan above and answer the questions that follow.

3.1.1 Determine the number of doors in the house.
3.1.2 Write down the compass direction of the window in Bed room 2
3.1.3 Give ONE valid reason for the position of the kitchen in this layout plan.
3.1.4 Measure the length of the north side of the house.
(2)
3.1.4 (2)

The surface area of the house to be painted measures 135 m<sup>2</sup>. The paint bought by Mr Hlongwa has a spread cover rate of 7,5 m<sup>2</sup> per litre of paint. He intends applying TWO layers of paint.

(4)

Determine the minimum number of litres of paint he must buy.

3.3 Mr Hlongwa invested R10 000 in a fixed deposit account for 3 years at an interest rate of 7,5% p.a. compounded annually. He intends using this money to buy his paint.

Calculate the amount of money in his fixed deposit account after three years.

(5)

[17]

4.1 Roshni went to Pillay's Supermarket. The till slip below shows the items she bought.

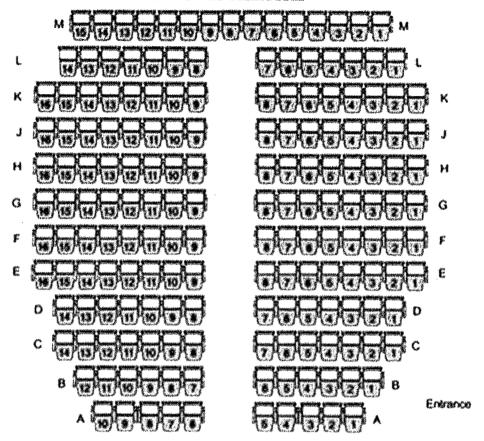
THE FRIENDLY GROCER STORE	Š.	
24 First Avenue		
Greyville, Durban		4 4 7 7
Tel. No.: 031 203 3124		
VAT Reg. No.: ***1234		
#1 & Clover Milk	R	14,99
2 & Helios oil	R	
# Rosa Tomatoes 400 g	R	
# Carrots 750 g		10,99
White Huletts Sugar 2,5 kg	R	
•	R	
Sliced cooked chicken 250 g	1/	44,40
TOTAL (excluding VAT)	R	125,62
VAT		11,71
1 7		A A
TOTAL (including VAT)	מו	* *
AMOUNT TENDERED	K	150,00
CHANGE		В
# Non-VAT items		
15-05-2017 15:35	Li	ndiwe

Use the till slip to answer the questions that follow:

4.1.1	Write down the VAT free items.	(2)
4.1.2	Determine the price per kilogram of the cooked chicken.	(3)
4.1.3	Write down the time the purchase was paid for in words.	(2)
4.1.4	Calculate the missing value A, round off your answer to the nearest 10 cents.	(2)
4.1.5	Give a reason why the total due was rounded off.	(2)
4.1.6	Calculate the missing value B.	(2)

4.2 Roshini and three friends went to the movies. The layout plan below shows the seats in the movie theatre.

#### LAYOUT OF SEATS IN A MOVIE THEATRE



### The Screen

Use layout plan to answer the following questions.

- 4.2.1 Determine the total number of seats in the movie house. (3)
- 4.2.2 Roshini is seated exactly in the middle of the row from the front of the screen.

State the row and seat number that Roshini is sitting in. (3)

4.3 The owner of the tuckshop at the movie house buys cooldinks in case lots of 24 as shown below.



The radius of the can is 3,5 cm. The cans are stacked next to each other.

Determine the minimum length and width of the box needed to store the 24 cans in a single layer.

(4) [23]

TOTAL:

[75]

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T&L

Explanation

Solution

QUESTION 1 [15 MARKS]

2 A

M&P L1 M&P

2 A

E VVA

1.1.2

D ~ A

1.1.1

ž

3

 $\Gamma$ 1

3

2 A

2 A

3 4 3

1M subtraction 1A simplification AO

3

Savings = R9 499 - R R8 499 \(^{12}\)

1.2.1

A VVA

1.1.4

BVVA

1.1.3

=R1 000~A

F I

3

3

F 2

1 M multiplying 1 A correct VAT

VAT amount = R8 499 ×  $\frac{14}{114}$   $\checkmark$ M $\checkmark$ A

1.2.3

1.2.2 Value added tax. VVA

= R1 043,74 CA

concept 1CA correct rounding

 $\Gamma$ 1

3

# Education

KwaZulu-Natal Department of Education REPUBLIC OF SOUTH AFRICA

## MATHEMATICAL LITERACY MARKING GUIDELINE SEPTEMBER 2017

# SENIOR CERTIFICATE NATIONAL

GRADE 10

MARKS: 75

EXPLANATION	Accuracy	Answer Only Full Marks	Conversion	Consistent accuracy	Explanation	deriving a formula	Justification	Method	Method with accuracy	No Penalty for Rounding	Opinion/ reason/deduction/example	Rounding off	Reading from a table/ graph/ diagram	Simplification	Correct substitution in a formula	Penalty for units, incorrect rounding off etc
SYMBOL	A	AO	ر ر	CA	Э	Ŧ	ſ	M	MA	NPR	0	Z.	RT/RG/RD	S	SF	ď

[15]

(3)

This marking guideline consists of 8 pages.

Please turn over

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Mathematical Literacy

	(2)	Any other valid reason√√O	
		OR	
		The bank needs to make profit. $\checkmark\checkmark0$	
		OR	
L4		salary. VVO	
إعتر	20	The personnel working in the bank need to be paid a	2.1.4
	(3)	-	
		= R18,00 √CA	
	1CA simplification	= 1800  cents	
L2	1M multiplying	Therefore the cost will be 20 × 90 cents √M	
দ্য	1A number of 20	$R2\ 000 \div R100 = 20\ \checkmark A$	2.1.3
Ľ4	(2)		
স	2 A	Cash at till √√A	2.1.2
	(2)	= 4,76% VA	
12	Ā	5,25	<u>©</u>
<u>,</u> 120	1 M % change	$7 = \frac{0.25}{100\%} \times 100\%$	2.1.1
:	(2)		3
L1			Э
ক	2 A	$Y = R8.50 \checkmark \checkmark A$	2.1.1
	(3)		
	A0		
	1CA	= R6,00 CA	
	lA increasing		
[2	1 M calculating %	$X = R5,50 + [R5,50 \times \frac{9,1}{100}] \checkmark M \checkmark A$	2.1.1
T&L	Explanation	Solution	Š
		QUESTION 2 [20 MARKS]	QUES.
			1

[20]			
	(2)	To make the assembly easy. $\checkmark$ $\checkmark$ O	
		OR	
L4		diagrams. VVO	
×	20	Children who cannot read will be able to follow the	2.2.2
	1A D (end) (4)	D A	
	2ABEAC in order	A VVA	
1.4		<b>B</b>	
×	1A F (start)	R VA	
1001	Explanation	Solution	Z

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Solution touse is cooler. ~~O OR OR OR OR		Explanation T&L	M&P	(2) L1	M&P	(2) L2	M&P	77				(2)	M&P	(Measurement must	printed paper)	Accept 10.1 & 10.3	(2)
N N N N N N N N N N N N N N N N N N N	STION 3 [17 MARKS]	1// 3	W^* 0	; ;	South OR S VA	T	Ine south side of the house is cooler.	OR	Water pipes needed in the kitchen requires access from the end wall. $\checkmark \checkmark 0$	OR	Any other valid reason. ✓✓O		10.2 cm ~ A		-		

(4) (5)	No	Solution	Frolanstion	F
Number of litres of paint = $\frac{270}{7.5}$ $\checkmark$ M = $\frac{1}{1}$ Ma two coats = $\frac{270}{7.5}$ $\checkmark$ M = $\frac{270}{7.5}$ $\checkmark$ M = $\frac{270}{1}$ Minipare of litres of paint = $\frac{270}{7.5}$ $\checkmark$ M = $\frac{135}{7.5}$ $\checkmark$ M = $\frac{135}{1}$ Miniterest = $\frac{135}{1}$ Miniterest = $\frac{3}{1}$ Signor (1+0,075) $\checkmark$ M = $\frac{1}{1}$ Miniterest = $\frac{3}{1}$ Signor (1+0,075) $\checkmark$ M = $\frac{1}{1}$ Miniterest = $\frac{3}{1}$ Signor = $\frac{1}{1}$ S	3.2	Surface to be covered by two coats of paint	Warner de-	MOR
Number of litres of paint = $\frac{270}{7,5}$ $\checkmark M$ 1 A surface area 1. Mumber of litres of paint = $\frac{270}{7,5}$ $\checkmark M$ 1 M dividing  Number of litres of paint = $\frac{135}{7,5}$ $\checkmark M$ 1 M dividing  Number of litres of paint = $\frac{135}{7,5}$ $\checkmark M$ 1 M dividing  Amount after 1 year = R10 000 (1 + 0,075) $\checkmark M$ 1 M interest = $\frac{18 \times 2}{16}$ t paint $\checkmark CA$ 1 A simplification 1.3 Amount after 2 years = R10 750 (1 + 0,075) $\checkmark M$ 1 M interest = $\frac{135}{16}$ $\frac{1}{16}$ $\frac$		= 2 × 135 × MA	1 MA two coats	Meer
Number of litres of paint = $\frac{270}{7.5}$ $\checkmark$ M  In dividing  OR  Number of litres of paint = $\frac{135}{7.5}$ $\checkmark$ M  Number of litres of paint = $\frac{135}{7.5}$ $\checkmark$ M  Amount after 1 year = R10 000 (1+0,075) $\checkmark$ M  Amount after 2 years = R10 750 (1+0,075) $\checkmark$ M  Amount after 3 years = R11 556,25 $\checkmark$ CA  Amount after 3 years = R11 556,25 $\checkmark$ CA  In interest calculation  1. CA simplification  1. CA final solution		$= 270 \mathrm{m}^2 \mathrm{\checkmarkA}$	1 A surface area	Ľ
OR  Number of litres of paint = $\frac{135}{7.5}$ $\checkmark$ M  Amount after 1 year = R10 750 $\checkmark$ A  Amount after 2 years = R10 750 $(1 + 0.075)$ $\checkmark$ M  Amount after 3 years = R11 556,25 $(1 + 0.075)$ $\checkmark$ M  Amount after 3 years = R11 556,25 $(1 + 0.075)$ $\checkmark$ M  I A surface area 1 Amount after 2 years = R10 750 $(1 + 0.075)$ $\checkmark$ M  Amount after 3 years = R11 556,25 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I A simplification 1 L3 $(1 + 0.075)$ $\checkmark$ M  I		Number of litres of paint = $\frac{270}{7.5}$ $\checkmark$ M	1M dividing	
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✓A       1 A surface area         = 18 × 2 √MA       1 MA two coats         = 36 ℓ paint √CA       1 CA Answer         Amount after 1 year = R10 000 (1 + 0,075) √M       1 M interest         = R10 750 √A       1 A simplification         Amount after 2 years = R10 750 (1 + 0,075) √M       1 M interest         = R11 556,25 √CA       calculation         1 CA simplification       1 CA simplification         1 CA final solution       1 CA final solution		Number of litres of paint $=\frac{135}{7.5}$ $\checkmark$ M	1M dividing	
= 18 × 2 · MA   1MA two coats = 36 ℓ paint · CA   1CA Answer   1CA Answer   4) Amount after 1 year = R10 000 (1 + 0,075) · M   1 M interest   R   1 A simplification   L3		\\ \\ \	1 A surface area	
CA Answer		= 18 × 2 √MA	1MA two coats	
Amount after 1 year = R10 000 (1+0,075) \( \times \)   1 M interest   F = R10 750 \( \times \)   Amount after 2 years = R10 750 (1+0,075) \( \times \)   1 M interest   1.4 simplification   1.3    Amount after 3 years = R11 556,25 \( (1+0,075) \)   1 CA simplification   1.4    Amount after 3 years = R11 556,25 (1+0,075)   1 CA final solution   (5)		= $36 \ell$ paint $\checkmark$ CA	1CA Answer	
Amount after 1 year = R10 000 (1 + 0,075) < M 1 M interest F = R10 750 < A   1 M interest   F   calculation   1 A simplification   L3    Amount after 2 years = R10 750 (1 + 0,075) < M   1 M interest   Calculation   Calculation   Calculation   CA simplification   CA simplification   CA simplification   CA final solution   CA	,		(4)	
M 1A simplification L3  IM interest calculation 1CA simplification 1CA final solution (5)	C.C.	Amount after 1 year = $R10\ 000\ (1+0.075)\ \text{VM}$ = $R10\ 750\ \text{VA}$	1 M interest calculation	Ħ
M IM interest calculation ICA simplification ICA final solution (5)		Amount offer 2 recomme = D10 750 /1 1 0 0 mm / 2	1 A simplification	L3
1CA simplification 1CA final solution (5)		= R11 556,25 $^{\circ}$ CA	IM interest calculation	
1CA final solution (5)		Amount after $3 \text{ years} = \text{R}11 556 25 (1 \pm 0.075)$	1CA simplification	
		$= R12 422,97 \checkmark CA$	1CA final solution	
[17]			(5)	
				[17]

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Mathematical Literacy

September 2017 Common Test

5 NSC

Mathematical Literacy

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								- 1					,
4.1.6			4.1.5		4.1.4	4.1.3			4.1.2		4.1.1	No	ľ
B = R150,00 - R137,30 \(^\)M = R12,70 \(^\)CA	Icent, 2 cent and 5 cent are not available in South Africa.	OR	South Africa does not work with 1 cent, 2 cent and 5 cent pieces $\checkmark \checkmark A$	$= K137,33$ $\approx R137,30 \checkmark A$	$A = R125,62 + R11,71 \checkmark MA$	Twenty five minutes to four in the afternoon $\forall A \forall A$		Cost of 1 kg chicken = $4 \times R24,48 \checkmark M$ = $R97,92 \checkmark CA$	250 g chicken cost R24,48	Carrots } ✓A	Clover milk \( \setminus A \) Rosa tomatoes \( \gamma \)	QUESTION 4 [23 MARKS]  No Solution	
IM subtracting ICA solution AO	C		2 A	AO (2	1M adding	l A time lA afternoon (2)	1CA solution (3)	1M multiplying	1A 4 by 250g	1A other 2 items (2)	1 A for first item	Explanation	
(2)	(2)			(2)		3			i				
<b>5</b> 5			<u> </u>		ਹਿੱ ਜ਼		5	1.2	দ্র		I.	T&L	

[23]			
	(4)	•	
	1CA length	Length wise there are 6 cans = $6 \times 7$ cm = $56$ cm $\checkmark$ A	
	lAwidth	Width wise there are 4 cans = $4 \times 7$ cm = $28$ cm $\checkmark$ A	
E	1M multiplying	M	
	1A diameter	Diameter of the can = $2 \times 3.5$ cm = $7$ cm $\checkmark$ A	
X			43
	(3)		
L2	2A seat	Seat 8VVA	
M&P	1A row	Row MYA	4.2.2
	(3)		
	AO		
	1CA		
L2	correct values	=175√CA	
	1A adding all the		
M&P	1M counting	Number of seats = $15+(6\times16)+(3\times14)+12+10$ $\checkmark$ M $\checkmark$ A	
1321	Explanation	Solution	Z

**TOTAL: 75**