Education

KwaZulu-Natal Department of Education

GRADE 12

NATIONAL SENIOR CERTIFICATE

MATHEMATICAL LITERACY P1

PREPARATORY EXAMINATION

SEPTEMBER 2018

MARKS: 150

TIME: 3 hours

This question paper consists of 11 pages and an addendum with 4 annexures (5 pages)

INSTRUCTIONS AND INFORMATION

1. This question paper consists of **FIVE** questions. Answer **ALL** the questions.
2. Use the ANNEXURES in the ADDENDUM to answer the following questions:
    - ANNEXURE A for QUESTION 2.2
    - ANNEXURE B for QUESTION 3.1
    - ANNEXURE C for QUESTION 4.1
    - ANNEXURE D for QUESTION 4.2
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. Maps and diagrams are NOT necessarily drawn to scale, unless stated otherwise.
10. Write neatly and legibly.

QUESTION 1

1.1

Sipho rents a flat in Ladysmith where he works. He has a car which consumes 5,9 litres per 100 km. The bath tub in the bathroom has a capacity of 98 litres. There is a triangular mirror in the bathroom with a length of 30 cm per side.

Determine:

1.1.1 the total length (in cm) of ribbon Sipho should buy to decorate the edges of the mirror. (2)

1.1.2 the number of litres to be consumed by the car if Sipho travels a distance of 350 km. (3)

1.1.3 the number of litres in the bath tub if it is half full. (2)

1.1.4 the capacity of the bath tub in kilolitres if 1 000 ℓ = 1 kilolitre. (2)

1.2

Mr and Mrs Naidoo have two daughters (Pinky and Ashnee). Pinky and Ashnee plan to buy a gift for their father for Fathers' Day. Mrs Naidoo will prepare a special meal for the day. She paid R454,93 for 7 kg of lamb. Amongst the groceries, there were mangoes which cost R7,99 each.

1.2.1 Determine the cost per kilogram of lamb. (2)

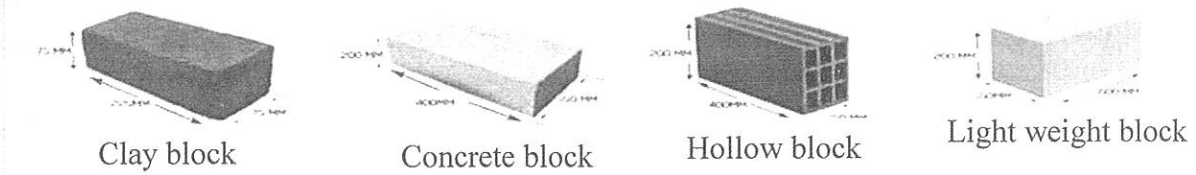
1.2.2 Calculate the total cost for a dozen mangoes. (3)

1.2.3 Mrs Naidoo divides R900,00 between Pinky and Ashnee in the ratio of 3:2. If Pinky receives R540,00, how much will Ashnee receive? (2)

1.2.4 Pinky bought a shirt which cost R533,00 (including 15% VAT) for her father. Calculate the VAT exclusive price of the shirt. (2)

1.3

Wendy wants to build a house. The plan of the house has a scale of 1: 250. The type of blocks are shown below



Clay block | Concrete block | Hollow block | Light weight block

1.3.1 Explain what is meant by the scale on the plan. (2)

1.3.2 What is the probability (as a common fraction) of randomly choosing a clay block?

Choose the correct answer from the answers given below:

A= P (clay block) = $\frac{2}{4}$ B = P (clay block) = $\frac{1}{4}$ C = P (clay block) = $\frac{3}{4}$ (2)

1. 4

An educator teaches two classes, 29 learners in class A and 20 learners in class B who wrote a test out of 50 marks. The tables below show marks scored by learners.

CLASS A	18	18	19	20	20	22	24	24	26	27	27	27	28	28	29
	30	31	32	33	35	35	36	37	37	38	38	39	40	46	

CLASS B	10	14	14	17	17	18	19	20	22	23
	23	24	25	28	36	38	41	41	42	44

Determine:

1.4.1 the minimum mark scored by a learner in class B. (2)

1.4.2 the modal mark in class A. (2)

1.4.3 the median mark in class A (2)

1.4.4 the maximum mark in class A. (2)

[30]

QUESTION 2

2.1 Gloria organizes a thanksgiving ceremony for her parents. She decides to buy a Bourdeaux dining set as a gift to her parents. The length of the dining set table is 2,4 metres and the width is 1,2 metres. A photo of the dining set is shown below.

WAS R40 391,00 NOW R29 999,00 OR R1 576,00 per month x 24 months

Source: www.cielostyle.co.za

2.1.1 Give the value of the voucher one gets when buying a Bourdeaux dining set. (2)

2.1.2 Determine the actual discount (in rands) of the dining set. (2)

2.1.3 Calculate the percentage discount on the dining set. Answer correct to one decimal place. You may use the following formula:

$$\textbf{Percentage discount} = \frac{\textbf{actual discount}}{\textbf{original price}} \times 100\% \quad (3)$$

2.1.4 If Gloria buys the dining set on hire purchase, how much will she pay over the whole term? (2)

2.1.5 After two months the price further dropped by 15%. Calculate the new price of the dining set. (3)

2.1.6 Calculate the deposit amount if it is 10% of the displayed discounted price. (2)

2.1.7 Gloria buys a table cloth which will overlap by 0,3 metres on the length. The material for the table cloth costs R39,99 per metre. Calculate the total cost for the table cloth. (3)

2.1.8 Gloria takes out a loan of R30 000,00 at the beginning of October and will start repaying it at the end of January. Calculate the total amount she owes after four months without using a formula. Interest rate is 12,3% p.a compounded monthly. (5)

2.1.9 Gloria hires a catering company to prepare refreshments for the thanksgiving ceremony. The company charges R175,00 per invited guest and R205 per extra uninvited guest.

(a) If Gloria invites 150 guests, determine the amount she will pay. (2)

(b) Ten invited guests also invited their friends (one each), determine the total amount to be paid. (3)

2.2 The bank statement showing transactions is shown in Annexure A. Use ANNEXURE A to answer the following questions.

2.2.1 Give the period of the bank statement in days. (2)

2.2.2 What type of account is shown in the bank statement? (2)

2.2.3 The balance brought forward on 17/11 has a negative sign. What does this mean? (2)

2.2.4 Calculate the missing value **C**. (2)

2.2.5 How much is the salary that was deposited on 25/11? (2)

2.2.6 What does the # sign mean about the service fee? (2)

2.2.7 Calculate the VAT amount on the service fee from other bank ATM. (3)

2.2.8 Calculate the difference between the closing balance on 01/12 and the overdraft limit. (2)

2.2.9 Write down the applicable interest rate on the balance brought forward on 01/12. (2)

[46]

QUESTION 3

3.1 Mr and Mrs Jiyane plan to take a holiday and travel by train from Johannesburg to Cape Town. ANNEXURE B shows tourist class train routes, schedules and fares.

Use **ANNEXURE B** and the above information to answer the following questions.

3.1.1 Determine the number of train stations that Mr and Mrs Jiyane pass before reaching Cape Town. (2)

3.1.2 Calculate the number of hours it will take them to reach Beaufort West station. (3)

3.1.3 Give three names of train stations where the train stopped for exactly five minutes when going to Cape Town. (3)

3.1.4 If Mr and Mrs Jiyane depart from Johannesburg on Friday, what is the probability as a percentage that they will arrive in Cape Town on Saturday? (2)

3.1.5 The distance from Johannesburg to Cape Town is 1 399 km. Calculate the average speed at which the train was travelling if the journey took 27 hours. You may use the following formula:

$$\textbf{Average speed} = \frac{\textbf{Distance}}{\textbf{Time}}$$ (2)

3.1.6 Mr and Mrs Jiyane wants to board a train on Saturday on their return trip. Will it be possible? Explain. (3)

3.2 A caterer was hired to cater for the Grade 12 farewell function. A caterer promised to donate a box of fudge to each matriculant. The photo of a fudge, diagram and the dimensions of the box are shown below. Fudge will be cut into triangular shapes with the thickness of 3 cm.

Diagram of the box of fudge

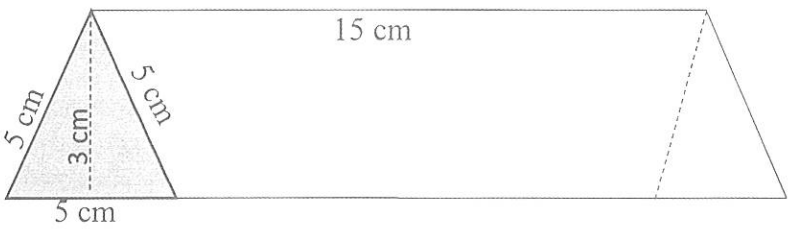
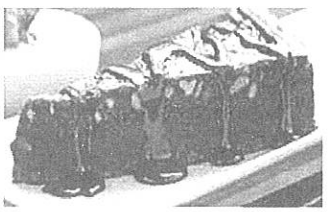


Photo of a fudge



3.2.1 Determine the number of fudge pieces that can fit into the full box. (2)

3.2.2 Calculate the total surface area of the box. You may use the following formula:

Surface area of a triangular prism = 3 (length × width) + 2($\frac{1}{2}$ **× base × height)** (3)

3.2.3 Calculate the volume of the triangular box. You may use the following formula:

Volume of a triangular prism = $\frac{1}{2}$ **× base × height of the triangle × height of the prism.** (2)

[22]

QUESTION 4

John and his friend bought tickets for the concert. The seating plan is shown in ANNEXURE C.

4.1 Use **ANNEXURE C** to answer the following questions.

4.1.1 Give the compass direction of the balcony left, from the stage. (2)

4.1.2 John and his friend will occupy middle seats in row AA balcony right. Give the seat numbers they will occupy. (2)

4.1.3 In this seating plan, how many seats are reserved for the physically challenged People? (2)

4.1.4 Each seat of the physically challenged occupies the space of two ordinary seats in two rows. Give the seat numbers and rows occupied by the seats of the physically challenged person in the 7^{th} and 8^{th} row. (2)

4.1.5 Determine the number of spectators that can be accommodated on orchestra right and orchestra left excluding rows **W**, **X** and a block of seats in front of the stage. (3)

4.2 A family visits Port Edward holiday resort to enjoy the mid - term holidays. A site map for the resort is shown in ANNEXURE D.

4.2.1 A family is allocated room 3 in block M. Give them directions to their room from the entrance gate. (4)

4.2.2 Give the number of the assembly point next to the pedestrian access to the beach. (2)

4.2.3 In which block can one find a camping site? (2)

4.2.4 Give the grid reference of the beach. (2)
[21]

QUESTION 5

5.1 A record of government spending on health in thousand Rands from 2013 to 2017 is shown in the table below.

Table 1 showing government spending on health in thousand Rands

Month	2013	2014	2015	2016	2017	Month total
January	28 977,1	32 608,8	27 714,6	26 969,1	33 010,5	**149 280,1**
February	30 361,5	35 488,2	30 712,0	30 933,5	34 209,5	**161 704,7**
March	34 761,4	35 172,2	34 751,6	34 144,8	39 231,0	**178 061**
April	31 865,2	31 647,7	32 675,8	30 843,8	34 240,7	**161 273,2**
May	30 402,1	30 932,4	32 812,7	37 994,3	35 931,9	**168 073,4**
June	35 088,5	31 630,8	35 668,4	41 023,0	39 504,3	**182 915**
July	32 847,9	31 517,7	30 620,3	**D**	35 798,8	**161 157**
August	35 523,4	32 124,1	31 313,7	34 052,2	40 613,9	**173 627,3**
September	34 731,0	35 345,8	33 416,7	39 162,7	41 647,5	**184 303,7**
October	34 544,7	34 101,5	33 004,9	37 222,0	42 620,3	**181 493,4**
November	34 122,6	32 274,1	30 901,0	39 519,9	42 178,5	**178 996,1**
December	34 452,5	33 434,3	34 055,0	41 765,7	41 199,1	**184 906,6**
Year total	**397 677,9**	**E**	**387 646,7**	**424 003,3**	**460 186,0**	**2 065 791,5**

Source : www.stassa.gov.za

Use table 1 to answer the following questions.

5.1.1 Determine the missing values **D** and **E**. (5)

5.1.2 In 2017 which month had the highest spending? (2)

5.1.3 Which month had the second lowest spending in 2013? (2)

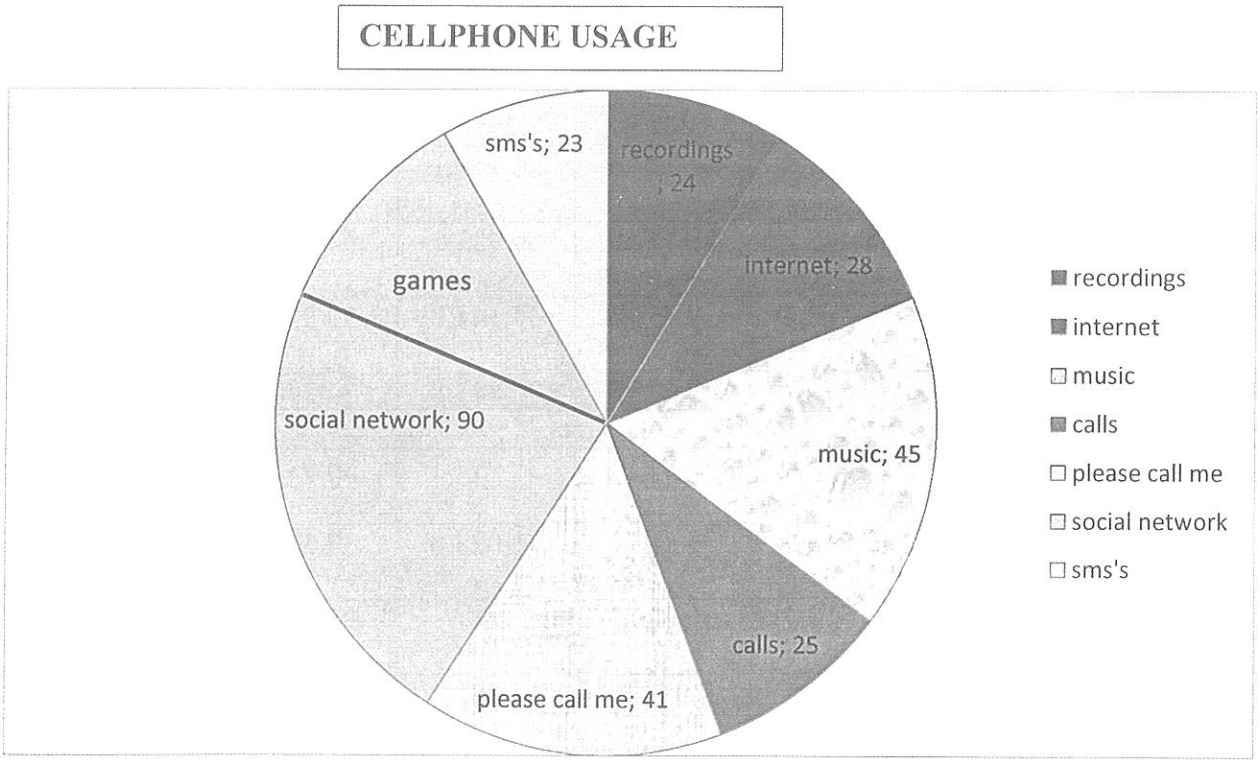
5.1.4 Write the amount for November 2015 in millions. (2)

5.1.5 Write the amount in 5.1.4 above in words. (2)

5.1.6 Arrange the December totals from 2013 to 2017 in descending order. (2)

5.2

A survey was conducted among 326 grade 12 learners to find out what they mostly use their cellphones for. Each learner had to choose only one option.



5.2.1 Determine the number of learners who mostly use their cellphones for playing games. (3)

5.2.2 For what do learners mostly use their cellphones? (2)

5.2.3 How many more learners use their cellphones for music, than internet? (2)

5.2.4 Determine the percentage of learners who use their cellphones for recording (2)

5.2.5 What is the probability (as a decimal fraction) of randomly selecting a learner who mostly use his/her cellphone for "please call me"? (3)

5.3

Ninety learners who indicated that they mostly use their cellphones on social network were further Surveyed to find out on which social network do they mostly use their cellphones. The table below shows the results of their responses.

Table 2 showing results of social network usage by gender.

Social networks	Males	Females	Total
Facebook	28	53	81
Whatsapp	27	63	90
Instagram	32	18	**F**
You Tube	17	42	59
Twitter	10	24	34

5.3.1 Name the social network that has more male users than females. (2)

5.3.2 Determine the missing value **F**. (2)

[31]

TOTAL: 150

Education

KwaZulu-Natal Department of Education

MATHEMATICAL LITERACY P1

PREPARATORY EXAMINATION

ADDENDUM

SEPTEMBER 2018

NATIONAL SENIOR CERTIFICATE

GRADE 12

This addendum consists of 5 pages with 4 annexures.

ANNEXURE A

QUESTION 2.2

BANK ACCOUNT STATEMENT OF MS SHANGE

Miss B.N Shange
P.O Box 2940
Pinetown
3600

Royal State Bank
P.O Box 369
Vryheid
3100

Statement frequency: Monthly
Statement from 13 November 2017 to 12 December 2017

BANK STATEMENT/ TAX INVOICE

ELITE PLUS CURRENT ACCOUNT Account number: 04 305 524 2 Statement no. 15

DETAILS	SERVICE FEE	DEBITS	CREDITS	DATE	BALANCE
Balance brought forward					6 493,01 -
Prepaid electricity		100,00 -		17/11	6 593,01 -
Fee prepaid electricity	#	1,10 -		17/11	6 594, 11 -
Debit card purchase		241.00 -		18/11	6 835,11 -
Purchase fee	#	3,50 -		18/11	7 185,11 -
Autobank cash withdrawal		2 500,00 -		22/11	9 685,11 -
Cash withdrawal fee	#	56,00 -		22/11	9 741,11 -
Debit card purchase at Spar		3 331,00 -		24/11	13 072,11 -
Purchase fee	#	18,50 -		24/11	13 090,61 -
Debit card purchase Ossies tyres		12 000,00 -		24/11	25 090,61-
Purchase fee	#	85, 00 -		24/11	C -
Credit transfer salary			37 150,23	25/11	11 974,62
Other bank ATM withdrawal at ABSA		500,00 -		25/11	11 474,62
Fee other bank ATM	#	6,70 -		25/11	11 467,92
Debit card purchase from Game		3 789,99 -		30/11	7 678,92
Iwyze insurance NAEDO debit		894,55 -		30/11	6 784,37
Service fee	#	3,50 -		30/11	6 780.87
Debit card purchase at Tile Mart		8 957, 00 -		01/12	2 176,13 -
Purchase fee	#	65,00 -		01/12	2 241,13 -
Closing balance				01/12	2 241,13 -

Fee structure
Overdraft details: Overdraft limit R8 000,00
Up to R3 000,00 at 14,750%
Above R3 000,00 at 17,750%

 # These fees are inclusive of VAT at 14%

Some information has been omitted. Adapted from: www.standardbank.com

ANNEXURE B
QUESTION 3.1
2018 TOURIST CLASS TRAIN ROUTES, SCHEDULES AND FARES

Tourist Class | JNB » CPT » JNB

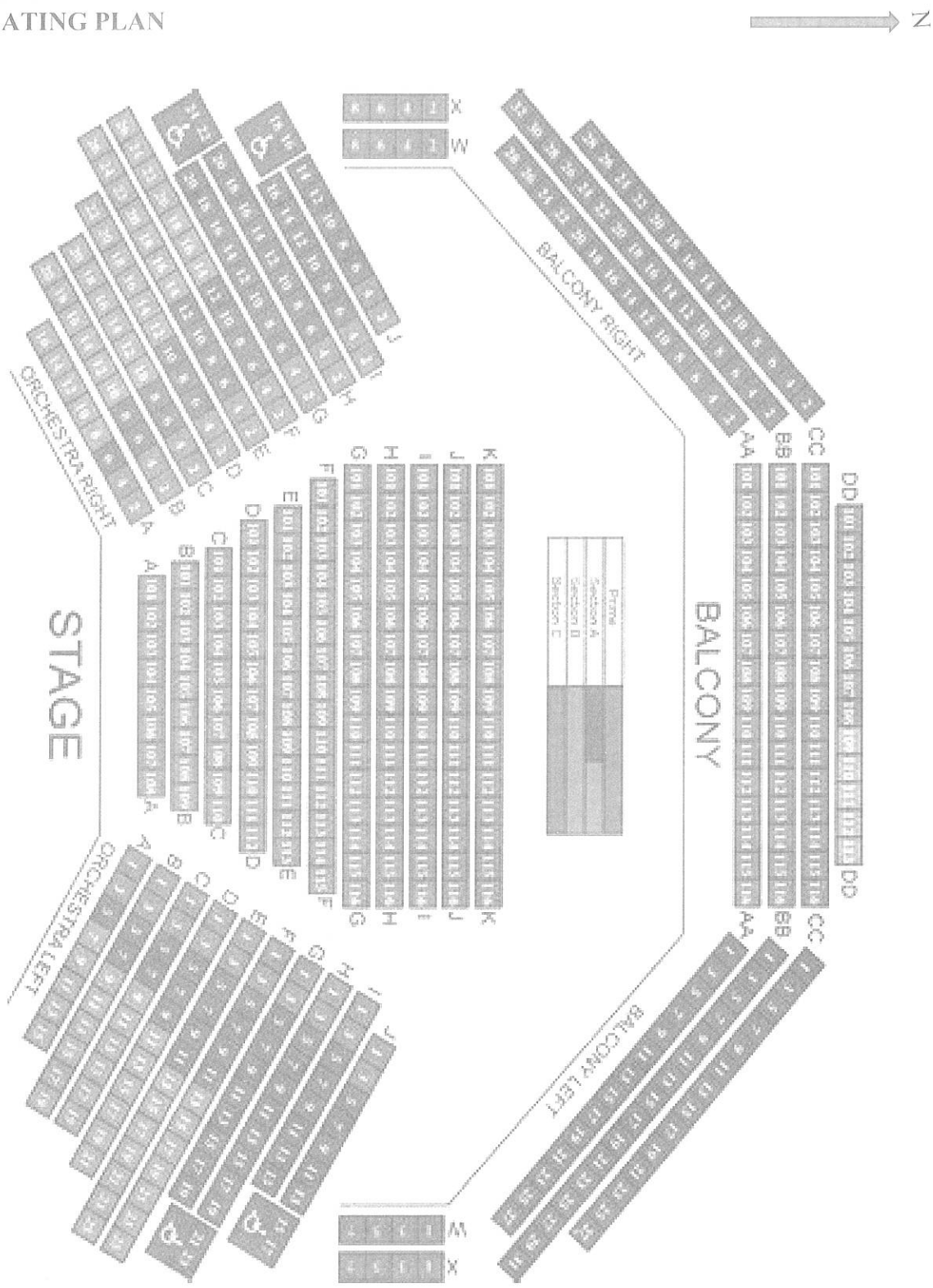
Train Journey: 27 hours | **Frequency:** 4 x per week (see days below) | **Fare:** R 690 | **Peak:** TBC

Johannesburg » Cape Town				**Cape Town » Johannesburg**			
Days running		**Tue / Wed / Fri / Sun**		**Days running**		**Wed / Thu / Fri / Sun**	
Train Station		**Arrival**	**Departure**	**Train Station**		**Arrival**	**Departure**
Johannesburg to...			12:30	**Cape Town to...**			10:00
Krugersdorp	(R100)	13:09	13:14	Bellville	(R90)	10:25	10:35
Potchefstroom	(R130)	15:16	15:29	Huguenot	(R100)	11:15	11:19
Klerksdorp	(R140)	16:09	16:25	Wellington	(R110)	11:30	11:36
Christiana	(R200)	19:11	19:16	Worcester	(R140)	13:10	13:30
Warrenton	(R220)	19:49	19:55	Matjiesfontein	(R180)	15:31	15:36
Kimberley	(R240)	20:54	21:20	Laingsburg	(R190)	16:00	16:10
De Aar	(R340)	01:18	01:35	Prince Albert	(R220)	17:30	17:35
Hutchinson	(R390)	03:30	03:35	Beaufort West	(R260)	19:25	19:50
Beaufort West	(R450)	05:30	06:00	Hutchinson	(R310)	21:34	21:39
Prince Albert	(R500)	07:35	07:42	De Aar	(R370)	23:25	23:45
Laingsburg	(R540)	09:05	09:15	Kimberley	(R470)	03:32	03:46
Matjiesfontein	(R550)	09:38	09:43	Warrenton	(R500)	04:43	04:48
Worcester	(R610)	11:50	12:05	Christiana	(R520)	05:16	05:21
Wellington	(R660)	13:50	13:54	Klerksdorp	(R610)	08:14	08:26
Huguenot	(R660)	14:05	14:09	Potchefstroom	(R630)	09:08	09:13
Bellville	(R680)	14:50	15:00	Krugersdorp	(R670)	11:20	11:25
Cape Town	(R690)	15:30		**Johannesburg**	(R690)	12:16	

Month	**March**	**April**	**May**	**June**	**July**
Fares	R 690	R 690	R 690	R 690/90days	opens April

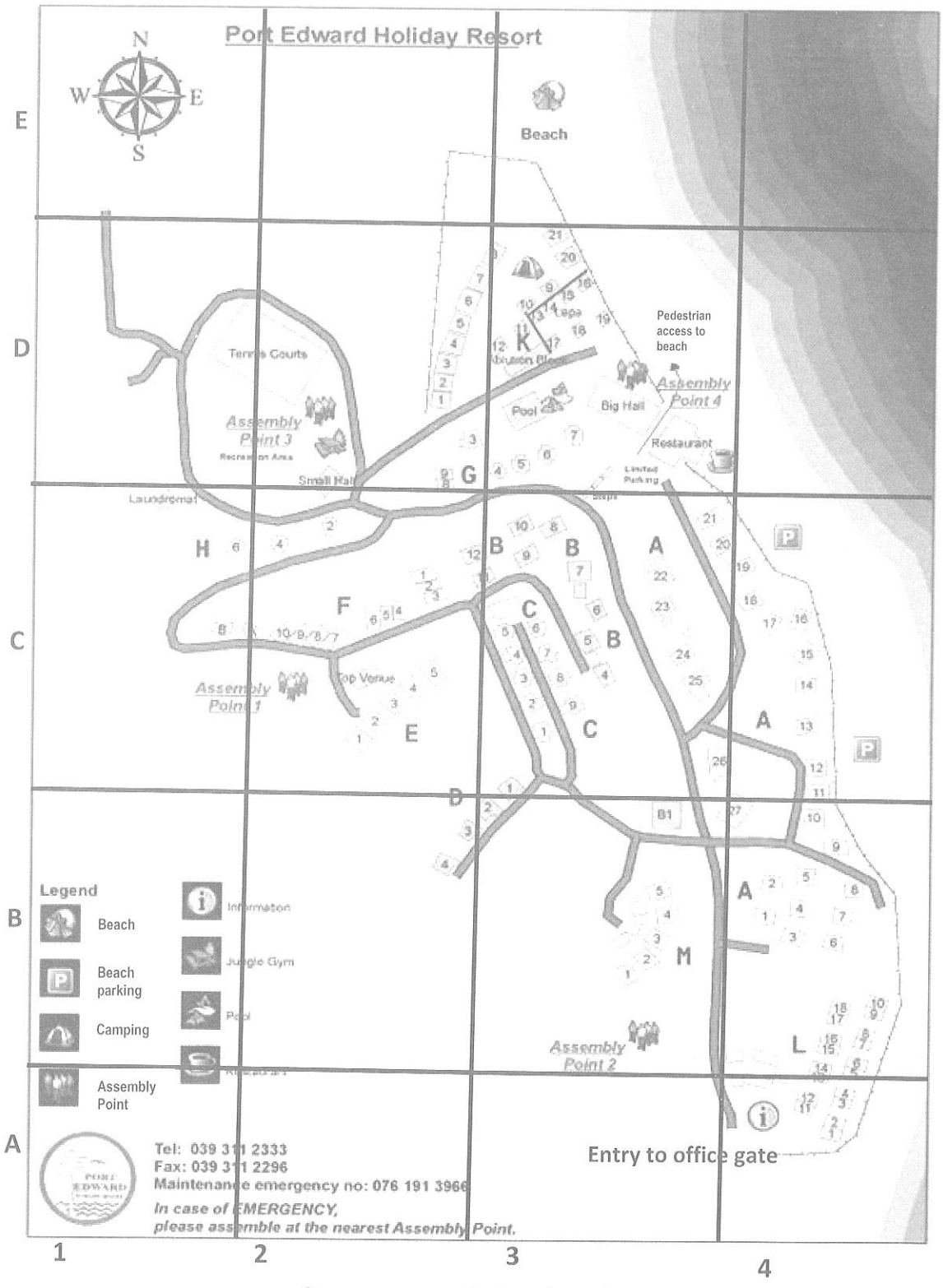
Source: www. trainroutes.org.za

ANNEXURE C
QUESTION 4.1
SEATING PLAN



Source: www.seating plans.com

ANNEXURE D
QUESTION 4.2
PORT EDWARD RESORT SITE MAP



Source www.portedwardresort.org.za

Education

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MATHEMATICAL LITERACY P1

PREPARATORY EXAMINATION

MARKING GUIDELINE

SEPTEMBER 2018

NATIONAL SENIOR CERTIFICATE

GRADE 12

MARKS: 150

SYMBOL	EXPLANATION
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG/RD/RM	Reading from a table/ graph/ diagram/map
SF	Correct substitution in a formula
O	Opinion/ reason/deduction/example/explanation
J	Justification
R	Rounding off
F	deriving a formula
AO	Answer only full marks
P	Penalty e.g. for units, incorrect rounding off etc.
NPR	No penalty for rounding / units

This marking guideline consists of 11 pages.

QUESTION 1 [30 MARKS]			
Ques	**Solution**	**Explanation**	**T & L**
1.1.1	Total length = 30 cm +30 cm + 30 cm ✓M = 90 cm✓ CA **OR** Total length = 30 × 3 ✓M = 90cm✓ CA	1M adding 1CA total length OR 1M multiplying by 3 1CA total length **AO** (2)	M L1
1.1.2	No.of litres = $\frac{350}{100}$ ✓MA = 3,5 ×5,9 ✓MA = 20,65 ℓ ✓A **OR** No. of litres = 5,9 × 3 = 17,7 ✓MA = 5,9 ÷2 = 2,95 ✓MA = 17,7 +2,95 = 20,65 ℓ ✓A **OR** No. of litres = $\frac{5,9 \times 350}{100}$ ✓✓MA = 20,65 ℓ ✓A	1MA dividing by 100 1MA multiplying 5,9 1A no.of litres **OR** 1MA multiplying by 3 1MA dividing by 2 1A no.of litres **OR** 1MA dividing by 100 1MA multiplying 5,9 1A no.of litres **AO** (3)	M L1
1.1.3	No.of litres = $\frac{98}{2}$ ✓MA = 49 litres ✓A	1MA dividing by 2 1A no. of litres **AO** (2)	M L1
1.1.4	No. of k ℓ = $\frac{98}{1000}$ ✓C = 0,098 k ℓ ✓A	1C dividing by 1000 1A no. of k ℓ **AO** (2)	M L1
1.2.1	Cost per kg = $\frac{R454,93}{7}$ ✓MA = R64,99 ✓A	1MA dividing by 7 1A Cost per kg **AO** (2)	F L1

1.2.2	1 mango : R7,99 12 mangoes: R ✓M Rands = 12 × R7,99 ✓M = R95,88 ✓CA	1M multiplication 1M dozen concept 1CA total **AO** (3)	F L1
1.2.3	Ashnee will get R900 – R540 ✓M =R360✓A **OR** No. of shares 3 +2 = 5 R900,00 ÷5 = R180,00 ✓M 3 ×R180,00 = R540,00 2 ×R180,00 = R360,00 ✓A Ashnee will get R360,00 **OR** No. of shares = 3 + 2 = 5 Ashnee will get $\frac{2}{5}$ ×R900,00 ✓M = R360,00 ✓A	1M subtracting R540 1A Amount **OR** 1M dividing by 5 1A multiplying R180 by 2 **OR** 1M multiplying two fifths by R900,00 1A amount (2)	F L1
1.2.4	VAT exclusive price = $\frac{R533,00}{1,15}$ ✓MA = R463,48 ✓A **OR** VAT exclusive price = R533,00 × $\frac{100}{115}$ ✓MA = R463,48 ✓A **OR** VAT = R533,00 × $\frac{15}{115}$ ✓MA = R69,52 = R533,00- R69,52 =R463,48 ✓A	1MA dividing by 1,15 1A VAT exclusive price **OR** 1MA multiplying by $\frac{100}{115}$ 1A VAT exclusive price **OR** 1MA multiplying by $\frac{15}{115}$ 1A VAT exclusive price **AO** (2)	F L1

1.3.1	One unit on the plan represents two hundred and fifty units in reality/on the ground/in real life. ✓✓E	2E explanation (2)	M&P L1
1.3.2	P(clay block) = $\frac{1}{4}$ ✓✓A **OR** B ✓✓A	2A answer **OR** 2A answer (2)	P L1
1.4.1	Class B minimum mark = 10 ✓✓A	2A minimum mark (2)	DH L1
1.4.2	Modal mark for class A = 27✓✓A	2A modal mark (2)	DH L1
1.4.3	Median mark for class A = 29 ✓✓A	2A median mark (2)	DH L1
1.4.4.	Maximum for class A = 46 ✓✓A	2A maximum mark (2)	DH L1
		[30]	

QUESTION 2 [46 MARKS]			
2.1.1	Voucher amount = R3 000,00 ✓✓A	2A amount (2)	F L1
2.1.2	Actual discount = R40 391,00 – R29 999,00 ✓MA = R10 392,00 ✓A	1MA subtracting correct values 1A actual discount (2)	F L1
2.1.3	% discount = $\frac{\text{actual discount}}{\text{original price}} \times 100\ \%$ = $\frac{R10\,392,00}{R40\,391,00} \times 100\%$ ✓SF = 25,72850387 ✓CA ≈25,7 % ✓R	**CA from 2.1.2** 1SF correct substitution 1CA answer 1R rounding (3)	F L2
2.1.4	Total amount = R1 576,00 × 24 ✓MA = R37 824,00 ✓A	1MA multiplying correct values 1A total amount (2)	F L1
2.1.5	Discount = 15% ×R29 999,00 ✓MA = R4 499,85 New price = R29 999,00 – R4 499,85 ✓M = R25 499,15 ✓CA **OR** ✓MA ✓M New price = R29 999,00 – (15% × R29 999,00) = R25 499,15 ✓CA **OR** New price = 100% -15% ✓MA = 85% × R29 999,00✓M = R25 499,15 ✓CA	1MA multiplying correct values 1M subtraction 1CA new price **OR** 1MA subtraction 1M multiplication 1CA new price **OR** 1MA 85% or 0,85 1M multiplication 1CA new price (3)	F L2
2.1.6	Deposit amount = 10% × R29 999,00 ✓MA = R2 999,90 ✓CA	1MA multiplying correct values 1CA deposit amount (2)	F L1
2.1.7	Length of cloth needed = 2,4 m + (0,3 m × 2) = 3m ✓A = 3m × R39,99 ✓M = R119,97 ✓CA	1A total length 1M multiplying by R39,99 1CA total amount (3)	F L2

2.1.8	Interest rate = 12,3% per annum Interest rate per month = $\frac{0,123}{12}$ = 0,01025 ✓A Oct R30 000,00 + (0,01025 × R30 000) = R30 307,50 ✓CA Nov R30 307,50 + (0,01025 × R30 307,50) = R30 618,15✓CA Dec R30 618,15 + (0,01025 × R30 618,15) = R30 931,99 ✓CA Jan R30 931,99 + (0,01025 ×R30 931,99) = R31 249,04✓CA	1A finding rate per month 1CA Oct total 1CA Nov total 1CA Dec total 1CA Jan total (5)	F L3
2.1.9 (a)	Amount = R175,00 ×150 ✓MA = R26 250 ✓CA	1MA multiplying by 150 1CA total amount (2)	F L1
(b)	Total amount = (R175,00 ×150) + (R205,00 ×10) ✓M = R26 250, 00 + R2 050,00✓S = R28 300,00 ✓CA	1M multiplying 10 by R205 1S simplification 1CA total amount (3)	F L2
2.2.1	13 November to 12 December = 30 days ✓✓A	2A no. of days (2)	F L1
2.2.2	Elite plus current account ✓✓A	2A name of account (2)	F L1
2.2.3	It means that the owner of the account owes the bank. ✓✓E **OR** Miss Shange owes the bank✓✓E **OR** The amount will be subtracted from credit **OR** The owner of the account is using overdraft facility	2 E explanation **OR** 2 E explanation **OR** 2 E explanation **OR** 2 E explanation (2)	F L1
2.2.4	C = R37 150,23 – R11 974,62 ✓MA = R25 175,61– ✓A **OR** C = R25 090,61 + R85,00 ✓MA = R25 175,61– ✓A	1MA subtracting correct values 1A value of C **OR** 1MA adding correct values 1A value of C **NPR** negative sign (2)	F L2
2.2.5	Salary = R37 150,23 ✓✓A	2A salary (2)	F L1
2.2.6	# key means that these fees are inclusive of VAT @ 14% ✓✓E	2E explanation (2)	F L1
2.2.7	Amount excluding VAT = $\frac{R6,70}{1,14}$ = R5,88 ✓A VAT amount = R6,70 – R5,88 ✓M = R 0,82 ✓A **OR** Amount excluding VAT = R6,70 × $\frac{100}{114}$ = R5,88 ✓A	1A amount excl. VAT 1M subtraction 1A VAT amount **OR** 1A amount excl. VAT 1M subtraction 1A VAT amount	F L2

	VAT amount = R6,70 – R5,88 ✓M = R 0,82 ✓A **OR** VAT amount = $\frac{14}{114} \times$ R6,70 ✓✓M = R0,82 ✓A	**OR** 2M multiplying by $\frac{14}{114}$ 1A VAT amount (3)	
2.2.8	Difference = R8 000,00 – 2 241,13 ✓MA = R5 758,87 ✓CA	1MA subtracting correct values 1CA difference (2)	F L1
2.2.9	Interest rate = 14,750% ✓✓RT	2RT reading from the table (2)	F L1
		[46]	

QUESTION 3 [22 MARKS]			
3.1.1	No.of train stations = 16 ✓✓A	2A number of stations (2)	M L1
3.1.2	No. of hours = 00:00 – 12:30 ✓M = 11 hours 30 minutes + 5 hours 30 minutes ✓M = 17 hours ✓A **OR** 12:30 – 13:30 13:30 – 14:30 ✓✓M 14:30 – 15:30 …….. 04:30 – 05:30 = 17 hours ✓A	1M subtraction 1M addition 1A no. of hours **OR** 2M adding 1A no. of hours **AO** (3)	M L2
3.1.3	Krugersdorp ✓RT Christiana ✓RT Hutchinson ✓RT Matjiesfontein ✓RT (Any three)	3 RT reading from the table (3)	M L2
3.1.4	P (arriving on Saturday) =100% ✓✓A	2A probability (2)	P L1
3.1.5	Average speed = $\frac{\text{Distance}}{\text{Time}}$ = $\frac{1399\text{km}}{27\text{hours}}$ ✓SF = 51,8 km/h ✓A	1SF correct substitution 1A average speed (2)	M L2

3.1.6	✓A No because there are no trains departing on Saturday.✓✓J	1A No 2J Justification (3)	M L2
3.2.1	No.of fudge pieces = $\frac{15\,cm}{3\,cm}$ ✓MA = 5 pieces ✓A	1MA dividing correct values 1A no. of pieces **AO** (2)	M L1
3.2.2	Surface area of a triangular prism = 3 (length ×width) + 2 ($\frac{1}{2}$ ×base ×height) =3 (15 cm ×5 cm) +2 (0,5 × 5 cm × 3 cm) ✓SF = 225 cm^2 + 15 cm^2 ✓S = 240 cm^2 ✓CA	1 SF correct substitution 1S simplification 1CA surface area (3)	M L2
3.2.3	Volume of a triangular prism = $\frac{1}{2}$ ×base × height of the triangle × height of the prism = 0,5 × 5 cm × 3 cm ×15 cm ✓SF = 112,5 cm^3 ✓A	1SF correct substitution 1A volume (2)	M L2
		[22]	

QUESTION 4 [21 MARKS]			
4.1.1	North East ✓✓RM **OR** NE ✓✓RM	2RM reading from the map (2)	M & P L1
4.1.2	Seat numbers 14 ✓RM and 16 ✓RM	2RM reading from the plan (2)	M & P L2
4.1.3	4 seats ✓✓A	2A number of seats **Accept 8 seats** (2)	M & P L1
4.1.4	Seat numbers 21 and 22 ✓A Rows G and H ✓A	1A seat numbers 1A rows (2)	M & P L2
4.1.5	✓RM No.of spectators = 102 ×2 ✓M = 204✓A	1RM reading 102 from the plan 1M multiplying by 2 1A no..of spectators **AO** (3)	M & P L1
4.2.1	- From entry gate proceed towards the North direction ✓A -Pass the road on the short right ✓A - At a cross road turn left ✓A - Turn left again until you reach room M3 ✓	1A North 1A pass short right 1A turn left 1A turn left again (4)	M & P L3
4.2.2	Assembly point 4 ✓✓A	2A for no. 4 (2)	M & P L1
4.2.3	Block K ✓✓A	2A block K **Accept D3** (2)	M & P L1
4.2.4	E 3 ✓✓A	2A grid reference (2)	M & P L1
		[21]	

QUESTION 5 [31 MARKS]			
5.1.1	D= R161 157 – (R32 847,9 + R31 517,7 + R30 620,3 + R35 798,8) ✓M = R30 372,3 ✓A **OR R30 372 300** **OR** D = 424003,3 – (26969,1 +30 933,5 + 34 144,8 + 30 843,8 +994,3 +41023,0 + 34 052,2 +39 162,7 + 37222,0 + 39 519,9 + 41 765,7) = R30 372,3 ✓A **OR R30 372 300** **OR** E = R32 608,8 + R35 488,2 + R35 172,2 +R 31 647,7 + R30 932,4+R31 630,8+ R31 517,7 +R 32 124,1 +R 35 345,8 + R34 101,5 + R32 274,1 + R33 434,3 ✓✓M = R396 277,6 ✓CA **OR R396 277 600** **OR** ✓✓M E =2 065 791,5 – (397 677,9+38 646,7+424 003,3+460 186,0) = R396 277,6 ✓CA **OR R396 277 600**	1M subtraction 1A total **OR** 1M subtraction 1A total **OR** 2M adding correct values 1CA total **OR** 2M subtracting correct values 1CA total **AO** (5)	DH L1
5.1.2	October ✓✓RT	2RT reading from the table (2)	DH L1
5.1.3	February ✓✓RT	2RT reading from the table (2)	DH L1
5.1.4	Amount = R30 901,0 ×1 000 ✓M = R30 901 000 ✓A **OR** R30,9 million	1M multiplying by 1 000 1A number in thousands **AO** (2)	DH L1
5.1.5	Thirty million nine hundred and one thousand rands. ✓✓CA	2 **CA from 5.1.4** (2)	DH L1
5.1.6	41 765,7 ; 41 199,1 ; 34 452,5 ; 34 055,0 ; 33 434,3 ✓✓RT	2RT reading from the table (2)	DH L2
5.2.1	✓M ✓M No. of learners = 326 – (90 + 41 +25 + 45 +28 + 24 + 23) = 50 ✓A	1M subtracting correct values 1M adding correcting values 1A number **AO** (3)	DH L2
5.2.2	Social networks ✓✓RG	2 RG reading from the graph (2)	DH L1
5.2.3	Music more than internet = 45 – 28 ✓M = 17 ✓A	1M subtraction 1A total **AO** (2)	DH L1

5.2.4	Percentage $= \frac{24}{326} \times 100\%$ ✓M $= 7{,}36\%$ ✓A	1M percentage concept 1A correct percentage **NPR** (2)	DH L1
5.2.5	P(learner using cellphone for please call me) $= \frac{41}{326}$ ✓A ✓A $= 0{,}13$ ✓CA	1A numerator 1A denominator 1CA decimal fraction (3)	P L2
5.3.1	Instagram ✓✓RT	2RT reading from the table (2)	DH L1
5.3.2	F = 32 + 18 ✓M = 50 ✓A	1M adding 1A total **AO** (2)	DH L1
		[31]	

TOTAL: 150

education

Department:
Education
PROVINCE OF KWAZULU-NATAL

MATHEMATICAL LITERACY

COMMON TEST

SEPTEMBER 2018

MARKING GUIDELINE

NATIONAL SENIOR CERTIFICATE

GRADE 10

MARKS: 75

SYMBOL	EXPLANATION
M	Method
MA	Method with accuracy
MCA	Method with consistent accuracy
CA	Consistent accuracy
A	Accuracy(Answer)
C	Conversion
S	Simplification
RT/RG/RD	Reading from a table/ graph/ diagram
NPR	No penalty for units/rounding
SF	Correct substitution in a formula
O	Opinion/ reason/deduction/example
J	Justification
R	Rounding off/
F	deriving a formula
E	Explanation
U	Units
AO	Answer only full marks

This marking guideline consists of 6 pages.

QUESTION 1 [16 marks]			
Que	**Solution**	**Explanation**	**L/T**
1.1.1	10 ✓✓A	2A, Answer (2)	**L1 M&P**
1.1.2	One unit on the floor represent two hundred units on the actual/real house. ✓✓A	2A, Answer (2)	**L1 M&P**
1.1.3	South East ✓✓A **OR** SE ✓✓A	2A, Answer **OR** 2A, Answer (2)	**L1** **M&P**
1.1.4	Actual length = 11cm × 200 ✓MA = 2 200cm ✓A	1MA, Multiplication 1A, Answer **AO** (2)	**L1 M**
1.1.5	Number format = R1.795 × 1 000 000 ✓C = R1 795 000 ✓A	1C, Multiply by 1 000 000 1A, Answer **AO** (2)	**L1** **M**
1.1.6	Percent = $\frac{825\ 000}{1795\ 000} \times 100\%$ ✓MCA = 45.96% ✓CA	**CA from 1.3.1** 1MCA, Percentage concept 1CA, Answer **AO NPR** (2)	**L1** **F**
1.2.1	A = 0,15 × R183,70 ✓M = R27,56✓CA **OR** A = $\frac{15}{115}$ x $R211,26$ ✓M = R27,56✓CA	1M, Multiplying by 15% 1CA, Answer **OR** 1M. Multiplying by $\frac{15}{115}$ 1CA, Answer **[1mark, if the difference used]** (2)	**L1** **F**
1.2.2	Electricity ✓✓A	2A, Answer (2)	**L1 F**
		[16]	

QUESTION 2 [26 marks]			
Que	**Solution**	**Explanation**	**L/T**
2.1.1	Cell phone banking. ✓✓O **OR** Internet banking. ✓✓O **OR** Automated Teller Machine (ATM). ✓✓O	2O, Opinion (2)	**L4** **F**
2.1.2	A = R5 300,45 – R5 050,45 ✓MA = R250 ✓A B = R5 300,45 – R 680✓M = R4 620,45 ✓CA	1MA, Subtracting balances 1A, Answer 1M, Subtraction of R680 1CA, Answer (4)	**L3** **F**
2.1.3	✓SF Bank charges = R3,00 + R1,20 × 6+ R1,20 = R 3,00 + R7,20 + R1,20 ✓S = R 11,40 ✓CA **OR** Bank charges = R3 + R1,20×7 ✓SF = R 3 + R8,40 ✓S = R 11,40 ✓CA	1SF, Substitution (number of hundreds) 1S, Simplification 1CA, Answer **OR** 1SF, Substitution (number of hundreds) 1S, Simplification 1CA, Answer (3)	**L3** **F**
2.1.4 (a)	**P** = R10 + R1.20 × 10 ✓MA = R10 + R12 = R22.00 ✓CA	1MA, Multiplying by 10 1CA, Answer (2)	**L2** **F**
2.1.4 (b)	R34.00 = R10 + R1.20 × **Q** ✓SF $\mathbf{Q} = \frac{R34 - R10}{R1,20}$ = 20 ✓S ∴ **Q** = 20 × R10 ✓MCA = R2 000 ✓A	1SF, Substitution (**Q** & R34 in the correct place) 1S, Simplification 1MCA, Multiplication 1A, Answer (4)	**L3** **F**
2.1.4 (c)	**R** = R40.00 ✓RT	1RT, Reading the correct value (2)	**L2** **F**

Que	Solution	Explanation	L/T
2.2.1	In order to check his or her credit record. ✓✓O **OR** To confirm that a person is working. ✓✓O **OR** To check the loan affordability. ✓✓O **OR** For security reasons. ✓✓O **OR** To avoid fraud. ✓✓O	2O, Opinion (2)	**L4** **F**
2.2.2	✓A Total initiation fee = 4 ×R100 ✓MA = R400 ✓CA	1A, Number of R100 1MA, Multiplication 1CA, Answer **AO** (3)	**L2** **F**
2.2.3	Waiting time = 5 ×60 ✓C = 300 seconds ✓CA	1C, Conversions 1CA, Answer **AO** (2)	**L2** **M**
2.2.4	Because, it is a one month loan service. ✓✓E **OR** Attract customers. ✓✓E	2E, Explanation (2)	**L4** **F**
		[26]	

QUESTION 3 [15 marks]			
Que	**Solution**	**Explanation**	**LT**
3.1.1	✓M A = 2,8m – 1,8m =1m÷2 ✓S = 0,5m ✓A	1M, Subtraction 1S, Dividing by2 1A, Answer (3)	**L2** **M**
3.1.2	P = 2(2,8m + 2,0m) ✓SF = 2(4,8m) = 9.6m ✓CA **OR** P = 2,8m + 2,0m +2,8m +2,0m ✓M = 9,6m ✓CA	1SF, Substitution 1CA, Answer **OR** 1M, Adding pair of sides 1CA, Answer **AO** (2)	**L2** **M**
3.1.3	Area = (2,8m ×2,0m) – (1,8m^2) ✓SF = 5,6m^2 – (1,8m^2) ✓S = 3,8m^2 ✓CA	1SF, Substitution 1S, Simplification 1CA, Answer (3)	**L2** **M**
3.1.4	8ℓ = 1 minute No of litres = 225 minutes ✓C = 225 × 8ℓ ✓M = 1 800ℓ. Yes, His statement was correct. ✓J	1C, Conversion to min 1M, Multiplying a by 8ℓ 1J, Justification (3)	**L4** **M**
3.1.5	✓M Energy saved = 0,8 x 15Kwh = 12Kwh ✓A **OR** Energy used = 20% of 15Kwh = 3Kwh ✓M Energy saved = 15Kwh – 3Kwh = 12Kwh ✓A	1M, Percentage concept 1A, Answer **OR** 1M, Percentage concept 1A, Difference (2)	**L1** **M**
3.2	Cost per bag = $\frac{R5320}{70}$ ✓MA =R76 ✓A	1MA, Dividing 1A, Answer **AO** (2)	**L1** **F**
		[15]	

QUESTION 4[18 marks]			
Que	**Solution**	**Explanation**	**TL**
4.1.1	No of tins height wise = $\frac{0{,}6 \times 100\text{cm}}{15\text{cm}}$ ✓C ✓M = 4 tins ✓CA	1C, Conversion 1M, Dividing heights 1CA, Answer **AO** (3)	**L3** **M&P**
4.1.2	No of tins in one container = 3 × 4× 4 ✓MCA = 48 tins ✓CA	**CA from Q4.1.1** 1MCA, 12 tins by 4 1CA, Answer **AO** (2)	**L2** **M&P**
4.1.3	No of containers = $\frac{200}{48}$ ✓MCA = 4.166666667 ✓CA = 5 containers ✓R	**CA from Q4.1.2** 1MCA, Dividing 1CA, Answer 1R, Rounding up (3)	**L2** **M&P**
4.2.1	No of tables = $\frac{48}{8}$ ✓M = 6 ✓CA	1M, Dividing 1CA, Answer (2)	**L1** **M&P**
4.2.2	To make the table extra strong. ✓✓O **OR** To minimize wobbling. ✓✓O	2O, Opinion (2)	**L4** **M&P**
4.2.3	They must be hand tighten first, then tool D or allen key must be used to tighten completely. ✓✓E	2E, Explanation (2)	**L1** **M&P**
4.2.4	1,8 cm : 135cm ✓MA 1 : 75 ✓CA	1MA, Scale concept and correct order 1CA, Answer (2)	**L3** **M&P**
4.2.5	To give a clear procedure for people who cannot read or write (illiterate). ✓✓E **OR** To allow people to see how the object assemble looks like. ✓✓E	2E, Explanation (2)	**L4** **M&P**
		[18]	

TOTAL: 75