education

Department:
Education
PROVINCE OF KWAZULU-NATAL

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

MATHEMATICAL LITERACY P1

COMMON TEST

JUNE 2020

MARKS: 100

TIME: 2 hours

This question paper consists of 9 pages including the Answer Sheet and an Addendum with 2 Annexures (3 pages).

NSC

INSTRUCTIONS AND INFORMATION

1.   This question paper consists of FIVE questions. Answer ALL the questions.

2.

         2.1   Use the ANNEXURES in the ADDENDUM to answer the following questions.

                   • ANNEXURE A for QUESTION 2.3 and 2.4
                   • ANNEXURE B for QUESTION 4

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.

10.   Write neatly and legibly.

QUESTION 1

1.1

> Lindo wants to study Actuarial Science at the University of Capetown. The flight took 1 hour 06 minutes from King Shaka International Airport to Capetown.

    1.1.1   How long (in minutes) did the flight take? (2)

    1.1.2   Determine Lindo's departure time if she arrived in Capetown at 11:08. (2)

1.2

> The cab from Capetown International Airport to the University charges R2,83 per kilometre. The distance from the airport to the University is 15,2 km.

    1.2.1   Calculate the total amount to be paid by Lindo for the cab (single trip). (3)

    1.2.2   If Lindo finds another student going to the University and decide that they share the cab fare, how much will each contribute? (2)

    1.2.3   If Lindo and friend pay by one R50,00 note, how much will their change be? (2)

    1.2.4   Convert the distance from Capetown International Airport to the University to miles if 1,6 km= 1 mile. (3)

1.3

> Lindo bought a suitcase to pack her clothes at R1 250,00 before 15% discount was offered.

    1.3.1   Determine the price of the suitcase after the discount was offered. (3)

1.4

> Students were asked to record the minimum and maximum temperatures for Durban for one week. TABLE 1 below shows minimum and maximum temperatures for Durban for one week.

TABLE 1: Shows minimum and maximum temperatures for one week in Durban.

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Maximum	27°	25°	25°	27°	29°	29°	31°
Minimum	22°	21°	20°	21°	22°	25°	23°

    1.4.1   Determine the mode of the minimum temperatures. (2)

    1.4.2   Calculate the mean of maximum temperatures. (3)

    1.4.3 Calculate the difference between the highest maximum temperature and the lowest
           minimum temperature. (2)

    1.4.4 Temperatures below 20℃ determine a cold day. Determine the chance of having a cold
           day in the week under observation above. (2)

1.5

> Ms Luthuli teaches learners about maps and scale. She gives learners a diagram with a scale of
> 1: 300.

    1.5.1 What type of scale is given on the diagram (2)

    1.5.2 Explain the meaning of the scale on the diagram. (2)

[30]

QUESTION 2

> The Chief Executive Officer (CEO) of Greenside paper company bought a town house at
> Umhlanga in Durban which costs R1 080 150,00. He also bought a three piece Texas lounge
> suite which costs R55 999,00.
>
> The company distributes boxes of papers to schools. To produce one box with 5 reams of
> papers cost R150,00. The fixed cost per month is R1 050,00. The selling price of one box with
> 5 reams of paper is R307,99. Photos of lounge suite and box of papers are shown in
> ANNEXURE A on the addendum.

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

2.1   Write down the cost price of a house in words. (2)

2.2   The transfer costs when buying a house are 9% of the selling price. Calculate the transfer costs
        that the CEO will pay. (2)

2.3   The CEO paid R5 599,00 as a deposit of the Texas Lounge Suite. Calculate the percentage of
        the deposit. (3)

2.4   Show how the total of R77 563,00 was calculated when buying the lounge suite on terms. (2)

2.5   Write down the formula for calculating the cost of producing reams of paper in the form of:
        Production cost = ………+ ……….. (2)

2.6   Write down the formula for calculating the income in the form of:
        Income = ……… (2)

2.7 **TABLE 2: Showing Cost price and selling price of boxes of papers**

No. of boxes	0	50	100	150	200	**C**
Cost of boxes in Rands	**A**	8 550	16 050	23 550	31 050	R38 550
Income in Rands	0	**B**	R30 799	R46 198,50	61 596	76 997,50

(7)

Calculate the missing values **A**, **B** and **C.**

2.8 Complete the graph of income on the attached ANSWER SHEET and label it accordingly. (5)

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QUESTION 3

Ms Thompson owns a day care centre. She uses bright coloured square boxes to decorate the classrooms. Each square box has six sides, five of which has square openings except the bottom one. The dimensions of the square box are shown below.

PHOTO OF A SQUARE BOX

150 mm

45 cm
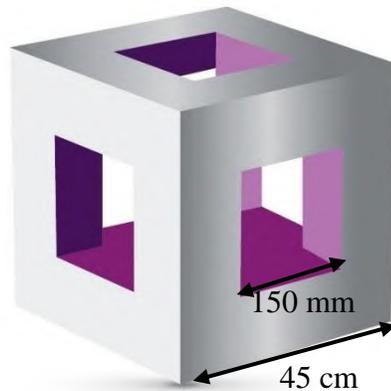
Source : www.shapes.com

3.1 Calculate the area in (cm^2) of the openings in one box.
You may use the following formula:
Area of a square opening = side × side (5)

3.2 The box will be covered on the outside on all six sides with the bright coloured wall paper except the openings (no overlapping). Calculate the total surface area to be covered. (3)

3.3 Use the surface area to be covered calculated in 3.2 to calculate the length of the wall paper if the width is 36,75 cm.You may use the following formula:
Area = length × width (3)

3.4 Ms Thompson will cover 6 boxes with orange wall paper, 8 boxes with blue wall paper and 4 boxes with yellow wall paper. Determine the probability (as a decimal) of choosing orange or yellow covered box. (3)

3.5 One box weighs 50 grams. Convert the weight to ounces (oz) if 1 ounce = 28 grams. Round the answer to one decimal place.. (3)

[17]

QUESTION 4

> Mr Sakie is a tourism educator. He plans an educational excursion for learners. They will visit Kruger National Park in Mpumalanga province. The map of Kruger national park is shown in ANNEXURE B in the addendum.

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

4.1   Give the name of the gate found on R525. (2)

4.2   How many lookout points are shown on the map? (2)

4.3   Give the general direction of Babalala picnic spot from Tshanga lookout point. (2)

4.4   Use the bar scale and a ruler to calculate the actual distance in kilometres from Makhadzi to Tshanga. (3)

4.5   If they travel along H 1-7 from Shingwedzi towards the North, where will they find the first lookout point? (2)

[11]

QUESTION 5

> The researcher from the Department of Health collects data about AIDS related deaths to check the effect of the ARVs as years pass by.
>
> **Table 3: below shows AIDS related deaths from 2010 to 2019.**
>
> | Births and deaths for the period 2010 - 2019 | Number of births | Number of deaths | Number of AIDS related deaths | Percentage of AIDS related deaths |
> |---|---|---|---|---|
> | 2010 | 1 204 340 | 574 718 | 176 946 | 30,8 |
> | 2011 | 1 192 472 | 551 597 | 153 284 | 27,8 |
> | 2012 | 1 184 855 | 550 702 | 148 374 | 26,9 |
> | 2013 | 1 180 634 | 535 958 | 137 542 | 25,7 |
> | 2014 | 1 178 657 | 538 866 | 131 908 | 24,5 |
> | 2015 | 1 177 000 | 532 761 | 133 951 | 25,1 |
> | 2016 | 1 179 465 | 526 226 | 130 434 | 24,8 |
> | 2017 | 1 178 754 | 530 210 | 132 544 | **A** |
> | 2018 | 1 175 282 | 535 401 | 129 677 | 24,2 |
> | 2019 | 1 171 219 | 541 493 | 126 805 | 23,4 |
>
> Source : www.statssa gov .za

Use the information above to answer the following questions

5.1 Calculate the percentage (correct to one decimal place) of AIDS related deaths in 2017. (3)

5.2 Which year shows the least number if Aids related deaths. (2)

5.3 Determine the number of non-AIDS related deaths in 2016. (3)

5.4 Calculate the mean number of deaths from 2015 to 2019. (3)

5.5 Determine the range of number of births from 2010 to 2019. (2)

5.6 Arrange the number of AIDS related deaths from 2015 to 2019 in descending order. (2)

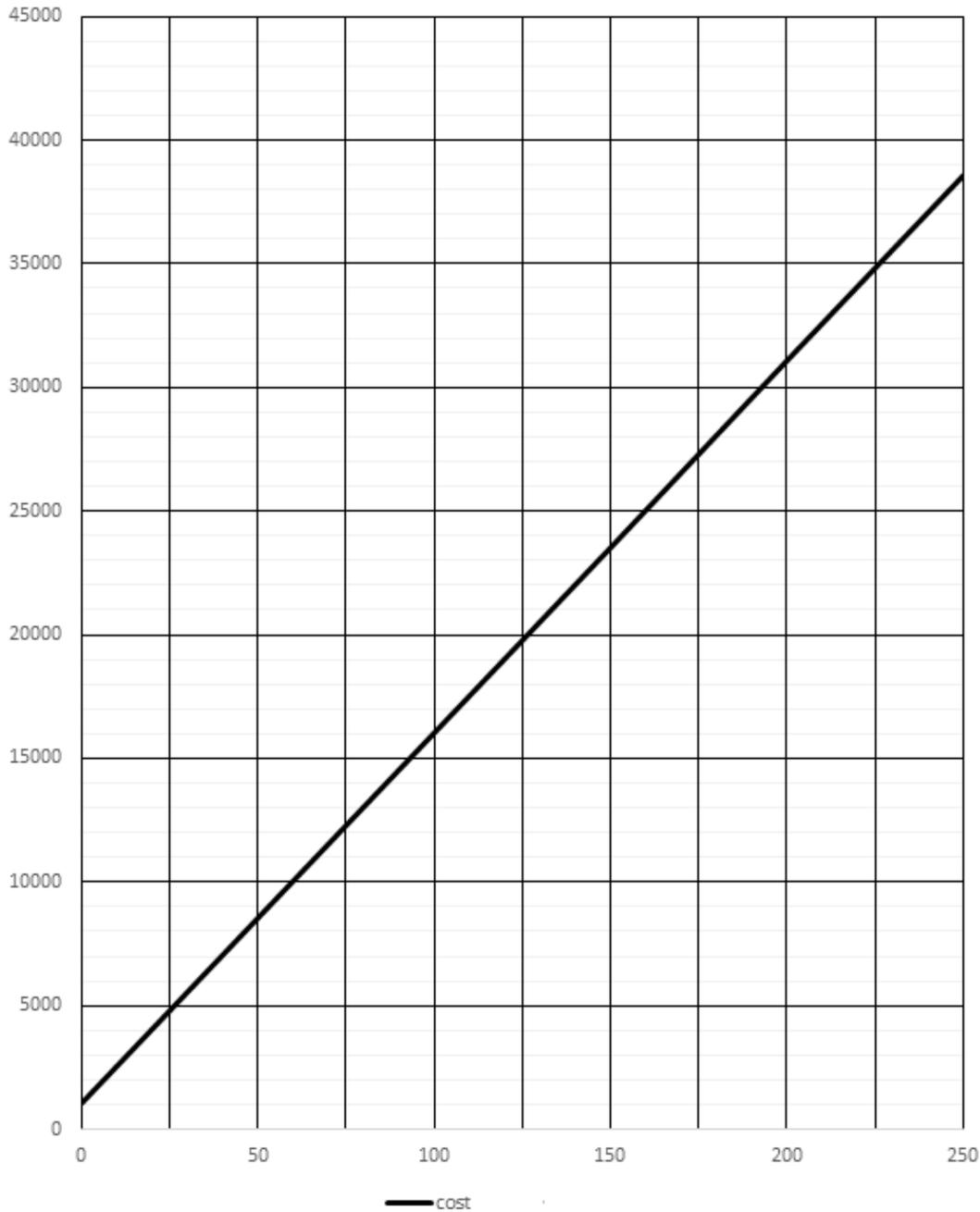5.7 Round the 2018 number of births to the nearest thousand. (2)

[17]

TOTAL: 100

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ANSWER SHEET

QUESTION 2.8

NAME:_____   CLASS:_____

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ADDENDUM

JUNE 2020

This Addendum consists of 2 Annexures (3 pages).

Please Turn Over

NSC - Addendum

ANNEXURE A

QUESTIONS 2.3 to 2.4

Photo of a Texas lounge suite

Source: www.loungesuites.com

Cash price: R55 999,00   **Deposit: R5 599,00**   **Term: 36 months**

Monthly instalment: R1 999,00   **Total amount: R77 563,00**

ANNEXURE B

QUESTION 4

Part of the map of Kruger National Park
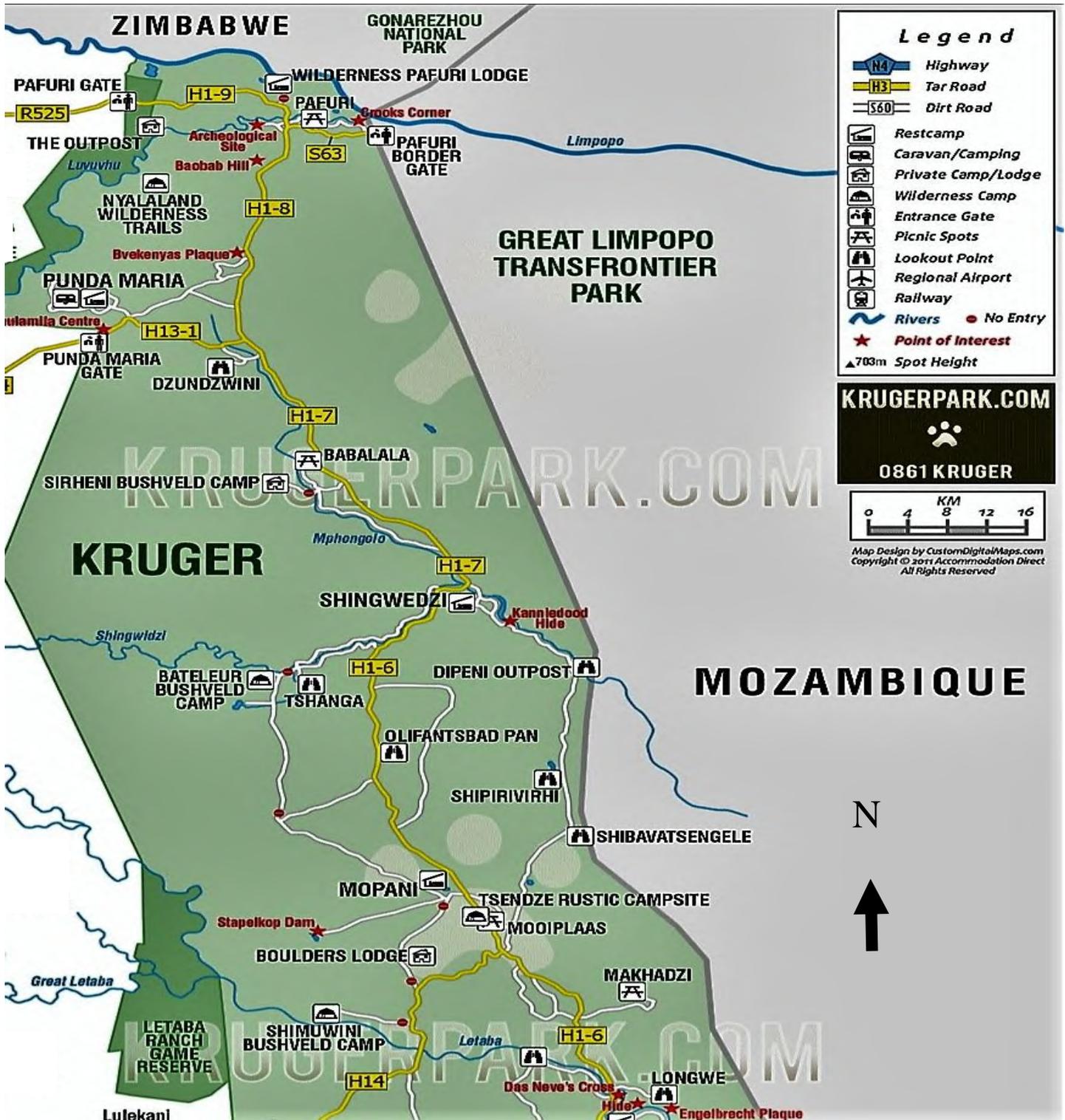
Source: www.krugerpark.com

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JUNE EXAMINATION

MARKING GUIDELINE

2020

MARKS: 100

SYMBOL	EXPLANATION
M	Method
MA	Method with accuracy
CA	Consistent accuracy
MCA	method with 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 7 pages.

NSC – Marking Guideline

QUESTION 1[30 MARKS]

Ques. No	Solution	Explanation	T& L
1.1.1	Time taken by flight = 1 hour 06 minutes = 60 minutes + 06 minutes ✓C = 66 minutes ✓A	1C conversion 1A correct time **AO** (2)	M L1
1.1.2	Departure time = 11:08 – 66 minutes ✓M = 10 :02 ✓A	1M subtraction 1A departure time **AO** (2)	M L1
1.2.1	Total amount = R2,83 × 15,2 km ✓M = R43,016 ✓A ≈ R43,02 ✓R	1M multiplication 1A amount 1R rounding (3)	F L1
1.2.2	Amount from each passenger = $\dfrac{R43,02}{2}$ ✓M = R21,51 ✓CA	1M dividing by 2 1CA amount **AO** (2)	F L1
1.2.3	Change = R50,00 – R43,02 ✓M = R6,98 ≈ R6,90	**CA from 1.2.1** 1M subtraction 1CA change (2)	F L1
1.2.4	1,6 km = 1 mile 15,2 km = mile ✓M $= \dfrac{15,2\,km \times 1\,mile}{1,6\,km}$ ✓M = 9,5 miles ✓A	1M multiplication 1M dividing 1A miles (3)	M L1
1.3.1	Discount = $\dfrac{15}{100}$ × R1 250,00 ✓M = R187,50 Price after discount = R1 250,00 – R187,50 ✓M = R1 062,50 ✓A **OR** Price after discount = R1 250,00 – (15% × R1 250,00) ✓M ✓M = R1 062,50 ✓A **OR** Price after discount = $\dfrac{85}{100}$✓M × R1 250,00 ✓M = R1 062,50 ✓A	1M multiplication 1M subtraction 1A price **OR** 2M subtraction and multiplication 1A price **OR** 1M subtracting 15% from 100% 1M multiplication 1A price (3)	F L1
1.4.1	Mode = 21✓A and 22 ✓A	2A two modes (2)	DH L1
1.4.2	mean = $\dfrac{27+25+25+27+29+29+31}{7}$ $= \dfrac{193}{7}$ ✓M ✓M	1M adding all values 1M dividing by 14	DH L1

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	= 27,57 ✓CA	1CA mean (3)	

1.4.3	Difference = $31^o - 20^o$ ✓M
	            = 11° ✓A
		1M subtraction
		 1A difference
		         (2)
			DH
			 L1

1.4.4	Chance = 0 ✓✓A	2A correct answer (2)	P L1

1.5.1	Number scale ✓✓A
	          OR
	 Ratio scale ✓✓A
		2A correct answer
		         OR
		 2A correct answer
		         (2)
			MP
			 L1

1.5.2	1:300 It means that one unit on paper represents three hundred units in real life. ✓✓E
	         OR
	 1:300 It means that one unit on paper is three hundred times bigger in real life. ✓✓A
		2E explanation
		
		         OR
		
		 2E explanation
		         (2)
			MP
			 L1

		[30]	

QUESTION 2 [25 MARKS]

Ques. No	Solution	Explanation	T& L
2.1	One million and eighty thousand one hundred and fifty rands. ✓✓A	2A correct words (2)	F L1

2.2	Transfer costs = 9% × R1 080 150,00 ✓MA
	            = R97 213,50 ✓A
		1MA multiplication
		 1A transfer costs
		         (2)
			F
			 L1

2.3	Percentage = $\dfrac{R5\,599,00}{R55\,999,00} \times 100\%$ ✓MA
	         = 9,998…. ✓A
	         ≈ 10% ✓R
		1MA % concept
		 1A percentage
		 1R rounding
		         (3)
			F
			 L1

2.4	Total amount = Deposit + R1 999,00 × 36 ✓M
	            = R5 599,00 + R71 964 ✓M
	            = R77 563
		1M multiplying by 36
		 1M adding deposit
		         (2)
			F
			 L1

2.5	Production cost = R1 050,00 + R150,00 × number of boxes✓✓F	2F formula (2)	F L2
2.6	Income = R307,99 × number of boxes sold ✓✓F	2F formula (2)	F L2

2.7	A = R1 050,00 ✓✓A
	
	 B = 50 × R307,99 ✓M
	    = R15 399,50 ✓A
	
	 C = R76 997,50 ÷ R307,99 ✓✓M
	    = 250 ✓A
	                OR
		2A fixed cost
		
		 1M multiplication
		 1A value of B
		
		 1M identifying both correct values
		 1M dividing by R307,99
		 1A value of C
		         OR
			F
			 L2

	C = R38 550,00 - R1050,00 ✓MA
	   = R37 500 ÷ R150,00 ✓MA
	   = 250 ✓A
		1MA subtracting R1 050,00
		1MA dividing by R150,00
		1A value of C
		
		                (7)	

2.8		2A both correct axes labels 1A graph starting at (0:0) 1CA joining points 1A two points correctly plotted (5)	F L2
		[25]	

QUESTION 3 [17 MARKS]

Ques. No	Solution	Explanation	T&L
3.1	Area of a square opening = side × side $= (150 \text{ mm} \div 10) \times (150 \text{ mm} \div 10)$ ✓C $= 15 \text{ cm} \times 15 \text{ cm}$ ✓SF $= 225 \text{ cm}^2$ ✓CA Total area of square openings $= 225 \text{ cm}^2 \times 5$ ✓M $= 1\ 125 \text{cm}^2$ ✓CA **OR** Area of a square opening $= 150 \text{ mm} \times 150 \text{ mm}$ ✓SF $= 22\ 500 \text{ mm}^2$ ✓A Total area of square openings $= 22\ 500 \text{ mm}^2 \times 5$ ✓M $= 112\ 500 \text{ mm}^2 \div 100$ ✓C $= 1\ 125 \text{ cm}^2$ ✓CA	1C conversion 1SF correct substitution 1CA area 1M multiplying by 5 1CA total area **OR** 1SF correct substitution 1A area 1M multiplying by 5 1C conversion 1CA total area (5)	
3.2	Surface area to be covered = (45 cm × 45 cm × 6) – area of ✓A openings ✓M $= 12\ 150 \text{ cm}^2 - 1\ 125 \text{cm}^2$ $= 11\ 025 \text{ cm}^2$ ✓CA	**CA from 3.1.1** 1M subtracting area of openings 1A surface area of one side 1CA surface area (3)	M L2
3.3	Area = length × width $11\ 025 \text{ cm}^2$ = length × 36,75 cm ✓SF $\text{length} = \dfrac{11025 \text{ cm}^2}{36,75 \text{ cm}}$ ✓M $= 300 \text{ cm}$ ✓A	**CA from 3.2** 1SF correct substitution 1M dividing by 36.75 1A length (3)	M L2
3.4	P(yellow or orange box) $= \dfrac{10 ✓A}{18 ✓A}$ $= 0,555$ ✓CA	1A numerator 1A denominator 1CA decimal (3)	P L2
3.5	Weight 1 ounce = 28 g ounce = 50 g $= \dfrac{50}{28}$ ✓M $= 1,7857$ ✓A $\approx 1,8 \text{ ounce}$ ✓A	1M dividing by 28 1A weight 1A one decimal place (3)	M L1
		[17]	

QUESTION 4 [11 MARKS]

Ques. No	Solution	Explanation	T&L
4.1	Pafuri gate ✓✓A	2A correct answer (2)	MP L1
4.2	8 ✓✓A	2A correct answer (2)	MP L1
4.3	North ✓✓A	2A direction (2)	MP L1

4.4	2,8 cm: 16 km
	8,5 cm: km
	km = $\dfrac{16 \times 8,5 ✓A}{2,8} ✓A$
	  = 48,57142….
	  ≈ 48,57 km ✓A
	
	OR
	
	28 mm: 16 km
	85 mm: km
	km = $\dfrac{16 \times 85}{28} \begin{matrix}✓A\\✓A\end{matrix}$
	  = 48,57142….
	  ≈ 48,57 km ✓A
		1M multiplying by 8,5
		1M dividing by 2,8
		
		1A no. of km
		OR
		
		1M multiplying by 85
		1M dividing by 28
		
		1A no. of km
		Accept 8,6 cm or 8,4 cm (3)
			MP L2

4.5	Dzundzwini ✓✓A	2A correct place (2)	MP L1
		[11]	

QUESTION 5 [17 MARKS]

Ques. No	Solution	Explanation	T&L

5.1	Percentage = $\dfrac{132\,544}{530\,210} \times 100\%$
	  = 24,998…..
	  = 25,0%
		1MA both correct values
		
		1A percentage
		1A rounding (3)
			DH L1

5.2	2019 ✓✓A	2A correct year (2)	DH L1
5.3	✓MA ✓M Non AIDS related deaths = 526 226 – 130 434 = 395 792 ✓CA	1MA identifying correct values 1M subtraction 1CA answer (3)	DH L1
5.4	Mean = $\dfrac{532\,761 + 526\,226 + 530\,210 + 535\,401 + 541\,493}{5}$✓M	1M adding values	

	$= \dfrac{2\,667\,091}{5}$ ✓A	1M dividing by 5	DH L2
	$= 533\,418,20$ ✓CA	1CA mean (3)	
5.5	Range $= 1\,204\,340 - 1\,171\,219$ ✓M	1M subtraction	
	$= 33\,121$ ✓A	1A range (2)	DH L1
5.6	133 951 ; 132 544 ; 130 434 ; 129 677 ; 126 805 ✓✓A	2A correct order (2)	DH L1
5.7	1 175 282 $\approx$ 1 175 000 ✓✓A	2A correct rounding (2)	DH L1
		[17]	
	TOTAL	**100**	