

TAS-AMESA MATHS LITERACY REVIEW

NSC 2022 - PAPER 2



COLLECTIVE RESPONSE

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QUESTION-BY-QUESTION REVIEW

Detailed Analysis

- Look at each question with a proposed memo
- Analyse each question in terms of 5 categories:
 - ✓ Context
 - ✓ Layout
 - ✓ Taxonomy levels
 - ✓ Language
 - ✓ General comments



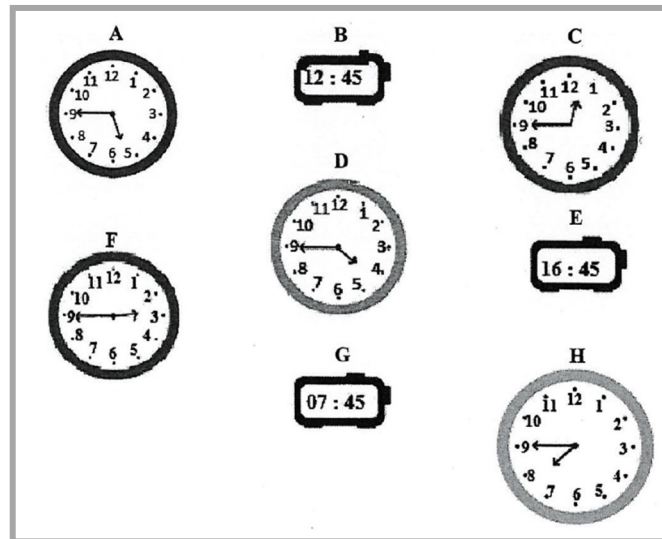
QUESTION 1

Measurement and Maps & Plans (Short, mixed q's)

QUESTION 1.1

Various clocks indicating time are shown below.

CLOCKS SHOWING TIME



Use the information to answer the questions that follow.

CONTEXT		LAYOUT OF DIAGRAMS, TABLES, IMAGES		GENERAL COMMENTS
X	Familiar	X	Accessible	Time is a challenge to learners and to start with that question really upsets many candidates
	Unfamiliar		Unaccessible	
X	Authentic & realistic	Comments:		
	Unauthentic & unrealistic	Clock A - dot not aligned with number 5 & arrow pointing past 5 but not close enough to 6		
Comments:				

1.1.1 Which ONE of the following (X, Y or Z) best describes the time displayed on EACH clock?

X Nine minutes to the next hour

Y Forty-five minutes to the next hour

Z A quarter to the next hour (2)

PROPOSED MEMO
Z – A quarter to the next hour

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
X	1: Knowing	X	Accessible	
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments: X, Y & Z might be a bit confusing with A,B,C clocks?		
	4: Reasoning & reflecting			
Comments:				

1.1.2 Name the TWO time formats used to display time on the clocks. (3)

PROPOSED MEMO	
Digital clock AND Analogue clock OR 12-hour format AND 24-hour format	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
X	1: Knowing	X	Accessible	Mark allocation of 3 marks – if only 2 answers required?
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

1.1.3 Write down, in words, the time displayed on clock B. (2)

PROPOSED MEMO	
Quarter to one o'clock	OR
45 minutes past 12 midday	OR
15 minutes to 1pm	OR
Twelve-forty-five	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
X	1: Knowing	X	Accessible	
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

1.1.4 Write down the number of clocks that clearly indicates a time in the afternoon. (2)

PROPOSED MEMO	
2 clocks	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
X	1: Knowing	X	Accessible	Learners may have written down the time of the clock instead of the number of clocks.
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

1.1.5 Convert 16 hours and 45 minutes to minutes. (2)

PROPOSED MEMO
16 hours and 45 minutes $= (16 \times 60 \text{ min}) + 45$ $= 960 + 45$ $= 1\ 005 \text{ minutes}$

TAXONOMY LEVEL	LANGUAGE	GENERAL COMMENTS
1: Knowing	X Accessible	Mark allocation - possibly 3 marks vs given 2 marks? Calculators may be used in the classroom for time conversions.
X 2: Applying routine procedures in familiar contexts	Unaccessible	
3: Applying multi-step procedures in a variety of contexts	Comments:	
4: Reasoning & reflecting		
Comments:		

QUESTION 1

Measurement and Maps & Plans (Short, mixed q's)

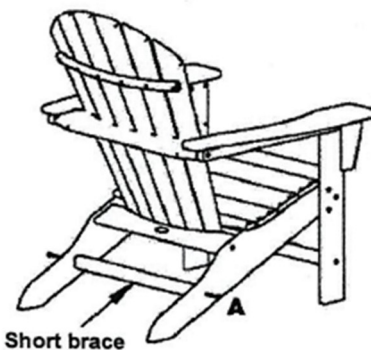
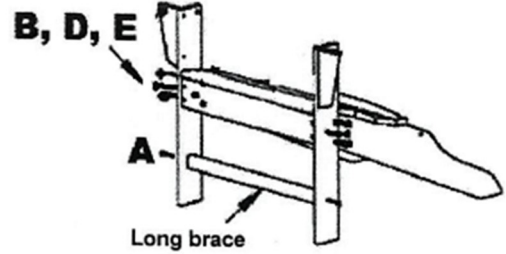

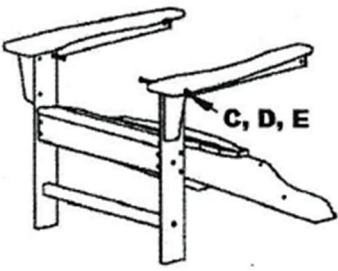





QUESTION 1.2

Illustrated below are steps and some instructions to assemble a deck chair. To assemble the deck chair, the wooden pieces are joined together using fasteners (screws, bolts, washers and nuts). There are 32 pieces in the packet of fasteners.

Each bolt is secured by a nut and a washer.

CONTEXT	
X	Familiar
	Unfamiliar
X	Authentic & realistic
	Unauthentic & unrealistic
Comments:	
LAYOUT OF DIAGRAMS, TABLES, IMAGES	
	Accessible
X	Unaccessible
Comments:	
Order of steps is in an anti-clockwise direction - which is confusing to learners	
Step 1 - Not clear that bolts are replicated on the other side	
Step 2 – not clear that bolts are replicated on the other arm	
GENERAL COMMENTS	
There were a lot of assumptions that had to be made with this question, which led to confusion and wasted time.	

STEPS TO ASSEMBLE A DECK CHAIR

STEP 4 COMPLETED CHAIR	STEP 1			
 <p>Short brace</p> <p>A</p>	 <p>B, D, E</p> <p>A</p> <p>Long brace</p> <p>Attach the seat using bolts (B), nuts (E) and washers (D) to the two front legs. Attach the long brace using the screws (A).</p>			
STEP 3	STEP 2			
 <p>A</p> <p>A</p> <p>Attach the back to the seat and arms using the screws (A).</p>	 <p>C, D, E</p> <p>Attach the arms to the two front legs using the bolts (C), nuts (E) and washers (D).</p>			
TYPE OF FASTENER				
A	B	C	D	E
Screw	Bolt	Bolt	Washer	Nut
				
Quantity	8	6	...	8
			8	8

1.2.1 Determine the number of type C bolts used to assemble the deck chair. (2)

PROPOSED MEMO
$\begin{aligned} \text{Bolt C} &= 32 - (8 + 6 + 8 + 8) \\ &= 32 - 30 \\ &= 2 \text{ OR} \end{aligned}$
Looking at STEP 2, candidates can see that only 2 bolt C's are needed

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
X	1: Knowing	X	Accessible	There could be a logical explanation that learners could have written down – based on their interpretation of the diagram.
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

1.2.2 State the number of nuts left over after step 1 is completed. (2)

PROPOSED MEMO	
Nuts € left over = $8 - 2$ = 6 <i>Assuming 1 × nut E per side of chair</i>	Nuts € left over = $8 - 6$ = 2 <i>Assuming 3 × nut E per side of chair</i>
CORRECT ANSWER UNKNOWN DUE TO UNCLEAR DIAGRAM!?	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	More complicated than it appears due to unclear diagram. Diagram open to interpretation.
X	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

1.2.3 Name the last piece required to complete the assembly of the deck chair. (2)

PROPOSED MEMO	
Short brace	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
X	1: Knowing	X	Accessible	One assumes that the last piece is the 'short brace' since it is the only main change in the diagrams from Step 3 to Step 4. However, how do we not know that the last piece required wasn't a screw?!?
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting	'Last piece required' is quite ambiguous?		
Comments:				

QUESTION 1

Measurement and Maps & Plans (Short, mixed q's)

QUESTION 1.3

Alongside is a map of North West showing destination town/cities and interleading roads.

MAP OF NORTH WEST SHOWING NATIONAL ROADS LEADING TO TOWNS/CITIES



[Adapted from sa-venues.com 2013]

Use the map above to answer the questions that follow.

CONTEXT		LAYOUT OF DIAGRAMS, TABLES, IMAGES		GENERAL COMMENTS
X	Familiar	X	Accessible	
	Unfamiliar		Unaccessible	
X	Authentic & realistic	Comments:		
	Unauthentic & unrealistic			
Comments:				

1.3.1 Identify the type of scale used in the map. (2)

PROPOSED MEMO	
Bar scale	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
X	1: Knowing	X	Accessible	Scale might be confusing to Geography learners who know it as a line scale.
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

1.3.2 Name the province that lies east of North West. (2)

PROPOSED MEMO	
Gauteng	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
X	1: Knowing	X	Accessible	Mpumalanga is also east of the North West province. Since the question didn't ask 'from the map', Mpumalanga should also be an acceptable answer.
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

1.3.3 Identify the national roads passing through Vryburg. (2)

PROPOSED MEMO	
N14 AND N17	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
X	1: Knowing	X	Accessible	
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				



1.3.4 Write down the number of destination towns/cities shown on the map. (2)

PROPOSED MEMO	
7 destination towns/cities	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
X	1: Knowing	X	Accessible	<p>Learners may spend a long time counting ALL the named towns/cities on the map.</p> <p>Learners need to learn how to extract the information required from the question/text/diagram etc.</p>
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

1.3.5 Measure, in mm, the direct distance (as the crow flies) from Bloemhof to Lichtenburg. (2)

PROPOSED MEMO
37 mm OR 39 mm
Proposed range: min = 37 mm and max = 40 mm

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
X	1: Knowing	X	Accessible	<p>Confusing question in a way:</p> <ul style="list-style-type: none"> ⇒ Measure in mm – ‘as the crow flies’ - usually in m or km? ⇒ Authenticity questioned as we teach learners to choose the most appropriate unit for the context, but the crow is flying in mm? ⇒ Only 2 marks, so can't be a conversion question ⇒ Where does the bar scale come into play? <p>Interesting how they included this Map question in Question 1 - which is for Level 1 taxonomy questions only - hence the reason why they didn't extend the bar scale question to a scale conversion.</p> <p>Due to the set-up on the exam paper layout, it has limited examiners with the range of questions they can ask.</p> <p>Also, questions may now also not be so predictable due to the restrictions of the exam paper guidelines?</p>
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting	Wording ‘As the crow flies’ is inappropriate		
Comments:				

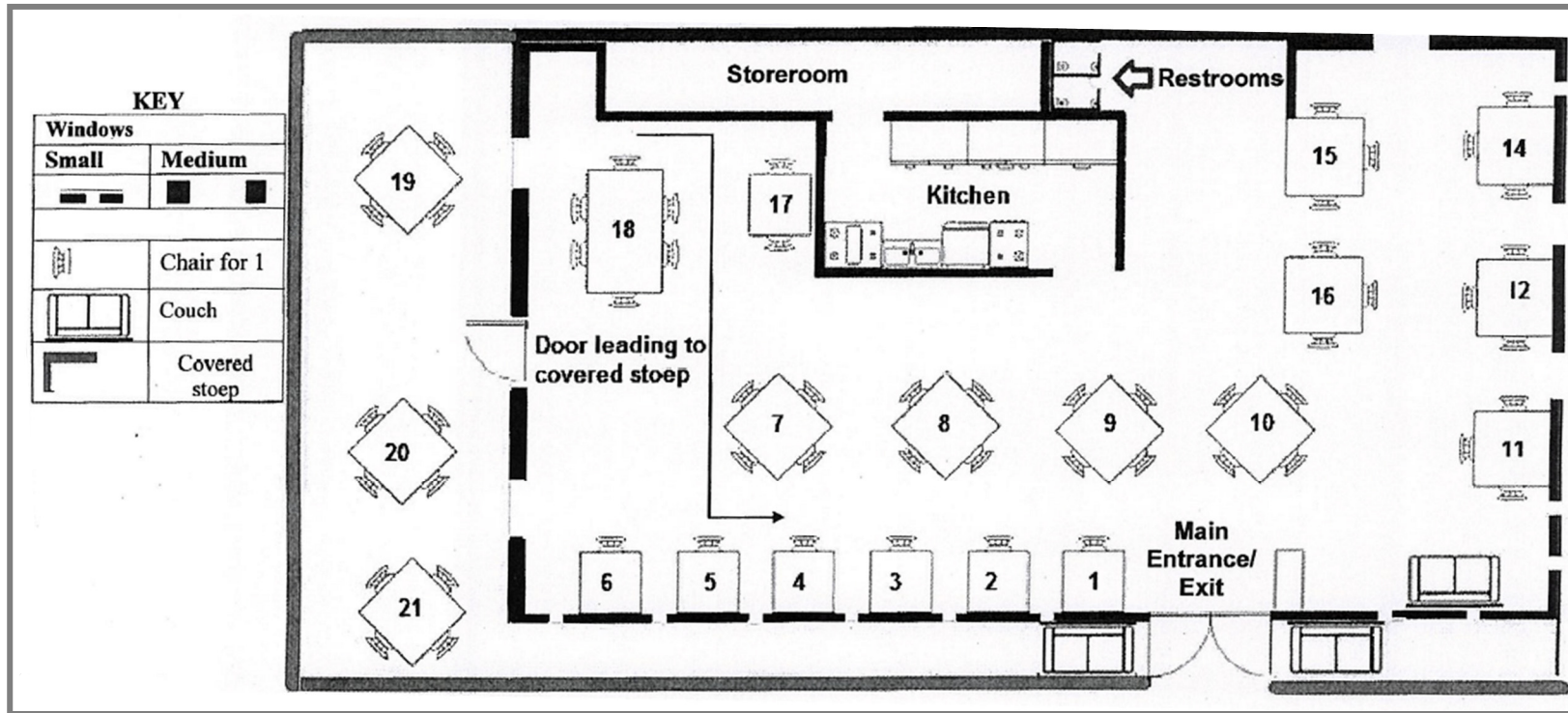
QUESTION 2

QUESTION 2.1

Below shows a restaurant's seating plan for customers.

Maps, Plans & Representations

SEATING PLAN OF THE RESTAURANT



[Adapted from www.bing.com]

Use the information to answer the questions that follow.

CONTEXT		LAYOUT OF DIAGRAMS, TABLES, IMAGES	GENERAL COMMENTS
X	Familiar	X Accessible	<p>Candidates are used to getting a compass on maps and plans.</p> <p>Reviewers asked that when directions are given, the compass with the 'N' facing direction is also included in the questions – to minimize confusion.</p>
	Unfamiliar	Unaccessible	
X	Authentic & realistic	<p>Comments:</p> <p>Windows might be confusing – small vs big & also learners need to realize it's the space between the black lines.</p> <p>Learners used to the standard window symbol in maps and plans.</p>	
	Unauthentic & unrealistic		
Comments:			

2.1.1 Give ONE possible reason why this restaurant has so many windows. (2)

PROPOSED MEMO
The restaurant has a beautiful view. OR
For ventilation. OR
For lighting (to reduce electricity costs) OR
To prevent Covid

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
X	4: Reasoning & reflecting			
Comments:				

2.1.2 Calculate the maximum number of chairs available for customers. (3)

PROPOSED MEMO
57 chairs OR
$\text{No. seats} = (6 \times 1) + (1 \times 2) + (5 \times 3) + (7 \times 4) + (1 \times 6)$ $= 57$

TAXONOMY LEVEL	LANGUAGE	GENERAL COMMENTS
1: Knowing	X Accessible	
X 2: Applying routine procedures in familiar contexts	Unaccessible	
3: Applying multi-step procedures in a variety of contexts	Comments:	
4: Reasoning & reflecting		
Comments:		

2.1.3 Determine the number of seats directly facing the wall on the south side. (2)

PROPOSED MEMO
<p>Tables 1 – 6 = 6 chairs Tables 11 & 12 = 2 chairs Tables 14-18 = 5 chairs ∴ Total seats directly facing south side wall = 13</p>

TAXONOMY LEVEL	LANGUAGE	GENERAL COMMENTS
1: Knowing	Accessible	<p>Most learners will get the 6 chairs, but how many would have looked at the chairs inside the restaurant.</p> <p>Reviewers believe this is an unfair question.</p>
X 2: Applying routine procedures in familiar contexts	X Unaccessible	
3: Applying multi-step procedures in a variety of contexts	<p>Comments: 'Directly facing the wall on the south side' – confusing and tricky. Wording will disadvantage 2nd language learners.</p>	
4: Reasoning & reflecting		
Comments:		

2.1.4 Give ONE reason why the restaurant has couches at the entrance. (2)

PROPOSED MEMO	
To seat customers who are waiting for a table. OR	
Waiting area for takeaways.	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	Learners from rural learners might not be familiar with the set-up of a waiting area in a restaurant.
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
X	4: Reasoning & reflecting			
Comments:				

2.1.5 A person at table 18 leaves her seat and walks towards her friend at table 4. She uses the arrow path shown on the seating plan.

Use compass directions to describe her path from table 18 to table 4. (3)

PROPOSED MEMO
<p>As the person leaves table 18, walk in an easterly direction towards table 17. Turn south before table 17 and walk past table 7. After table 7, turn east and walk past table 5 until you get to table 4. OR</p>
<p>Facing east, walk towards table 17. Turn south between table 17 & 18. When reach table 5 turn east. Table 4 will then be on your right.</p>

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	The absence of a compass direction might have thrown some learners (may not have read the whole plan properly).
X	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

**2.1.6 Norma claims that there are less than 21 tables for customers in this restaurant.
State, with reason, whether her claim is valid. (3)**

PROPOSED MEMO
<p>They have not labelled a table as number 13. So T21 – 1 table = 20 tables ∴ Norma’s claim is valid.</p>

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
X	4: Reasoning & reflecting			
Comments:				

Maps, Plans & Representations

QUESTION 2

QUESTION 2.2

Below shows the choices on the set menu for a function at the restaurant.

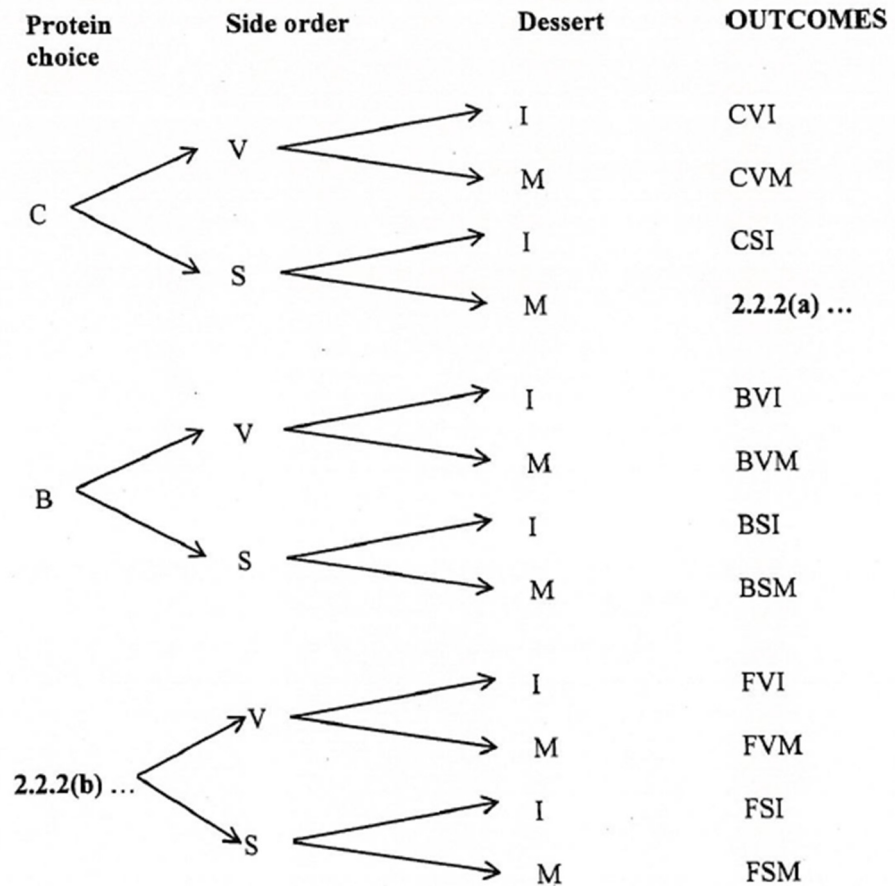
Customers can choose:

- One protein: chicken (C), beef (B) or fish (F)
- One side order: vegetables (V) or a salad (S)
- One dessert: ice cream (I) or malva pudding (M)

Use the information to answer the questions that follow.

CONTEXT	
X	Familiar
	Unfamiliar
X	Authentic & realistic
	Unauthentic & unrealistic
Comments:	
LAYOUT OF DIAGRAMS, TABLES, IMAGES	
X	Accessible
	Unaccessible
Comments:	
GENERAL COMMENTS	

CHOICES FROM A SET MENU AT THE RESTAURANT



2.2.1 Name the type of diagram illustrated above. (2)

PROPOSED MEMO	
Tree diagram	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
X	1: Knowing	X	Accessible	
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

2.2.2 Write down the missing outcome at 2.2.2(a) and the protein choice at 2.2.2(b). (4)

PROPOSED MEMO	
2.2.2 (a) CSM	OR Chicken, Salad, Malva Pudding
2.2.2 (b) F	OR Fish

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	Could switch answers easily, as learners could expect the question on the furthest left to be a (since we read left to right).
X	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments: Should have split the question up into 2 parts. Learners could easily have answered the first part of the question and then skipped the second part.		
	4: Reasoning & reflecting			
Comments:				

2.2.3 State the number of combinations with beef as the protein. (2)

PROPOSED MEMO
4 number of combinations / outcomes

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing		Accessible	Terminology used in this question is not consistent with the terms used in previous years or papers.
X	2: Applying routine procedures in familiar contexts	X	Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments: 'Number of combinations' could have been difficult to understand for some learners – should have used the word 'outcomes' or 'choices'.		
	4: Reasoning & reflecting			
Comments:				

2.2.4 Determine, as a percentage, the probability of randomly selecting a meal with malva pudding as the dessert. (3)

PROPOSED MEMO
$P(\text{malva pudding}) = \frac{6}{12} \times 100\%$ $= \frac{1}{2} \times 100\%$ $= 50\%$

TAXONOMY LEVEL	LANGUAGE	GENERAL COMMENTS
1: Knowing	X Accessible	
X 2: Applying routine procedures in familiar contexts	Unaccessible	
3: Applying multi-step procedures in a variety of contexts	Comments:	
4: Reasoning & reflecting		
Comments:		

QUESTION 2

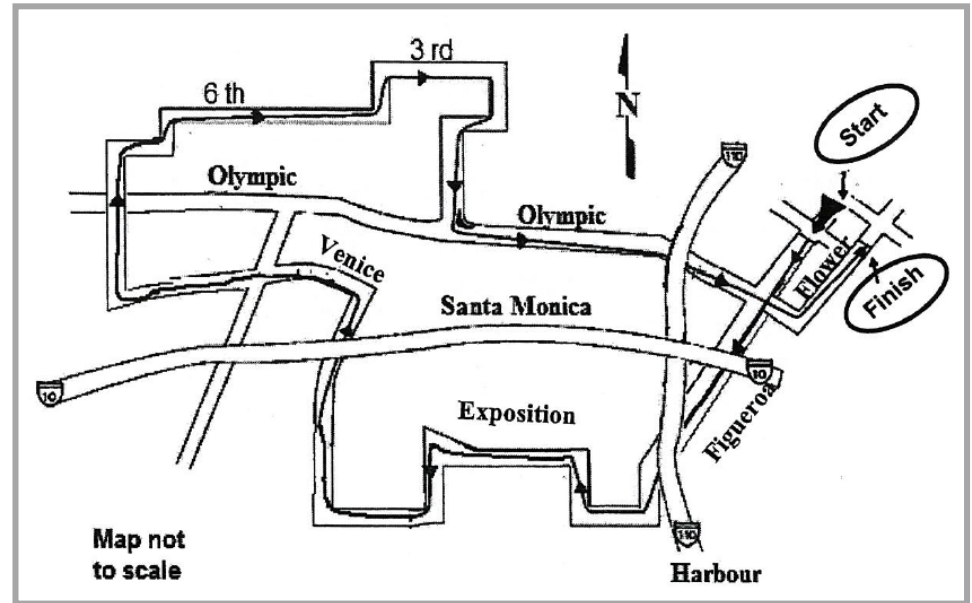
Maps, Plans & Representations

QUESTION 2.3

Alongside is a simplified route map of the Los Angeles Marathon (LAM) in the United States of America. The LAM route is 26,2 miles.

Use the information above to answer the questions that follow.

ROUTE MAP OF LOS ANGELES MARATHON (LAM)



[Source: www.bing.com]

CONTEXT		GENERAL COMMENTS
	Familiar	
X	Unfamiliar	
X	Authentic & realistic	
	Unauthentic & unrealistic	
Comments:		
LAYOUT OF DIAGRAMS, TABLES, IMAGES		GENERAL COMMENTS
	Accessible	<p>Confusing map overall.</p> <p>The value of 26,2 miles isn't used anywhere – unnecessary information. Again, the question with the miles has been set up for a conversion, but not followed through.</p> <p>Should always have a key to a map.</p> <p>This map question feels like it was included for the sake of achieving the weighting required for maps ... however, it was messy and far too repetitive with reasoning and writing type questions.</p>
X	Unaccessible	
Comments:		
<p>The route indicated is messy and unclear.</p> <p>The numbers 6th and 3rd are distracting.</p> <p>Learners anticipate that they need to do something with the numbers, so it should have read '6th street' or '3rd street'.</p> <p>The streets are not named clearly.</p>		

2.3.1 Explain the meaning of *route map*. (2)

PROPOSED MEMO	
A <i>route map</i> is a map of the route or path a person will travel from point A to point B; showing streets, landmarks, direction etc. OR	
<i>Route map</i> is a map showing the road names and places a person will travel on during their journey.	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
X	1: Knowing	X	Accessible	
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

2.3.2 Describe what is meant by 'Map not to scale'. (2)

PROPOSED MEMO
'Map not to scale' means that this map does not reflect the real/actual distances in real life. OR
This map cannot be used to accurately determine a distance. OR
Proportions used on the diagram are not the same as in reality. OR
Map is not drawn with measurements in mind.

TAXONOMY LEVEL	LANGUAGE	GENERAL COMMENTS
1: Knowing	X Accessible	Good for learners to reflect on the terms used in maps and plans.
2: Applying routine procedures in familiar contexts	Unaccessible	
3: Applying multi-step procedures in a variety of contexts	Comments:	
X 4: Reasoning & reflecting		
Comments:		

2.3.3 The runners in the Los Angeles Marathon have to pass underneath a bridge at certain points during the marathon.

(a) Explain how this is indicated on the route map. (2)

PROPOSED MEMO
The route shown by the line and arrow disappears under a road and reappears on the other side of the road. OR
The direction arrows have a blank space/discontinue to indicate where runners will pass underneath a bridge. OR
The roads are shown above the route in 10 and 110. OR
There is a 'break' in the line.

TAXONOMY LEVEL	LANGUAGE	GENERAL COMMENTS
1: Knowing	X Accessible	<p>Considering it is a messy diagram, it might be difficult for learners to figure out the bridges?</p> <p>Another question that is heavy on writing and reasoning – especially for second language learners.</p>
2: Applying routine procedures in familiar contexts	Unaccessible	
3: Applying multi-step procedures in a variety of contexts	Comments:	
X 4: Reasoning & reflecting		
Comments:		

2.3.3 The runners in the Los Angeles Marathon have to pass underneath a bridge at certain points during the marathon.

(b) Write down the number of times that a runner who completes the marathon will pass underneath a bridge.

PROPOSED MEMO
4 times

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	If learners battled to figure out how bridges were indicated – as in Q2.3.3(a) – they might not be able to answer this question too ... lose 4 marks then?
X	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments: Follow movement under bridge – not straight forward				

2.3.4 Write down the general direction in which the runners will face when they start in Flower Street. (2)

PROPOSED MEMO	
South West	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
X	1: Knowing	X	Accessible	It looks like learners finish in Flower Street and not start in it?
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

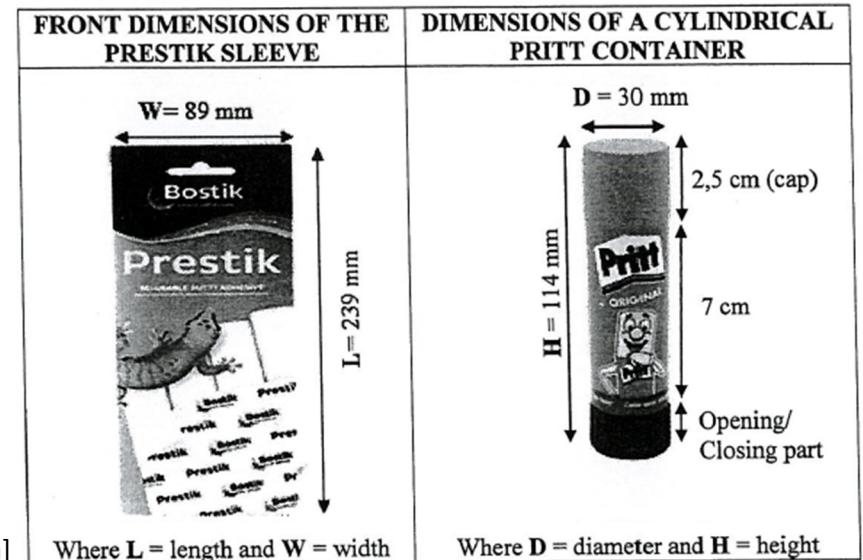
QUESTION 3

Measurement

QUESTION 3.1

Every learner in a Technology class is expected to have Prestik and Pritt (glue stick). The Prestik is packed in a rectangular-shaped sleeve and the Pritt in a cylindrical container.

The dimensions of the rectangular face of the Prestik sleeve and the cylindrical Pritt container are given alongside.



[Source: plastilon.co.za and mcsofficesupplies.co.za]

Use the information to answer the questions that follow.

CONTEXT		LAYOUT OF DIAGRAMS, TABLES, IMAGES		GENERAL COMMENTS
X	Familiar	X	Accessible	Nice relatable question for learners.
	Unfamiliar		Unaccessible	
X	Authentic & realistic	Comments:		
	Unauthentic & unrealistic			
Comments:				

3.1.1 Calculate the perimeter of the front of the Prestik sleeve.

You may use the formula: $\text{Perimeter} = 2 \times (\text{length} + \text{width})$ (3)

PROPOSED MEMO
Perimeter = $2 \times (\text{length} + \text{width})$ = $2 \times (239 \text{ mm} + 89 \text{ mm})$ = $2 \times 328 \text{ mm}$ = 656 mm

TAXONOMY LEVEL	LANGUAGE	GENERAL COMMENTS
1: Knowing	X Accessible	
X 2: Applying routine procedures in familiar contexts	Unaccessible	
3: Applying multi-step procedures in a variety of contexts	Comments: 'Perimeter of the front' is misleading – as perimeter doesn't have a front and back	
4: Reasoning & reflecting		
Comments:		

3.1.2 Calculate, in cm, the height of the opening/closing part of the Pritt container. (3)

PROPOSED MEMO
<p>Height in cm = $114 \text{ mm} \div 10 = 11,4 \text{ cm}$</p> <p>Total height = Cap + Body + Opening/closing part $11,4 \text{ cm} = 2,5 \text{ cm} + 7 \text{ cm} + \text{Opening/closing part}$ $\therefore \text{Opening/closing part} = 11,4 \text{ cm} - 9,5 \text{ cm}$ $= 1,9 \text{ cm OR}$</p> <p>Height = $\frac{114 \text{ mm}}{10} - 7 \text{ cm} - 2,5 \text{ cm}$ $= 1,9 \text{ cm}$</p>

TAXONOMY LEVEL	LANGUAGE	GENERAL COMMENTS
1: Knowing	X Accessible	
2: Applying routine procedures in familiar contexts	Unaccessible	
X 3: Applying multi-step procedures in a variety of contexts	Comments:	
4: Reasoning & reflecting		
Comments:		

3.1.3 The actual height of the glue in the Pritt container is 8,5 cm and the volume of the glue, rounded to THREE decimal places, is 52,346 cm³.

(a) Show how the volume of the glue was calculated if the diameter of the glue is 28 mm.

You may use the formula: $\text{Volume} = 3,142 \times \text{radius}^2 \times \text{height}$ (4)

PROPOSED MEMO
<p>Radius = 28 mm ÷ 2 = 14 mm ∴ Radius = 14 mm ÷ 10 = 1,4 cm</p> <p>Volume = 3,142 × radius² × height = 3,142 × (1,4 cm)² × 8,5 cm = 52,34572 cm³ ≈ 52,346 cm³</p>

TAXONOMY LEVEL	LANGUAGE	GENERAL COMMENTS
1: Knowing	Accessible	
2: Applying routine procedures in familiar contexts	X Unaccessible	
X 3: Applying multi-step procedures in a variety of contexts	Comments:	
4: Reasoning & reflecting	'Actual height of the glue' usually refers to the height in reality - but nowhere in the given context question did they say that the dimensions were not to scale.	
Comments:	Or perhaps it is the contents of the glue = height of 8,5 cm.	

3.1.3 The actual height of the glue in the Pritt container is 8,5 cm and the volume of the glue, rounded to THREE decimal places, is 52,346 cm³.

(b) Determine (rounded to the nearest gram) the mass of the glue in the Pritt container, if the density of the glue is 0,82 g/cm³.

You may use the formula: Density = Mass ÷ Volume (4)

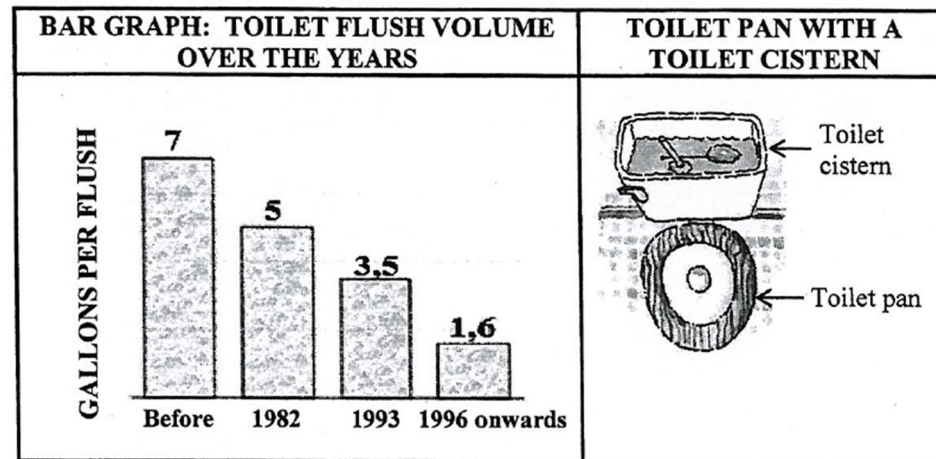
PROPOSED MEMO
Density = Mass ÷ Volume $0,82 \text{ g/cm}^3 = \text{Mass} \div 52,346 \text{ cm}^3$ $\therefore \text{Mass} = 0,82 \text{ g/cm}^3 \times 52,346 \text{ cm}^3$ $= 42,92372 \text{ g}$ $\approx 43 \text{ g}$

TAXONOMY LEVEL	LANGUAGE	GENERAL COMMENTS
1: Knowing	X Accessible	Density is an unfamiliar concept within a familiar concept of stationery.
2: Applying routine procedures in familiar contexts	Unaccessible	
X 3: Applying multi-step procedures in a variety of contexts	Comments:	
4: Reasoning & reflecting		
Comments:		

QUESTION 3

QUESTION 3.2

Water is a scarce resource in South Africa. The graph below shows how the volume of water in a toilet cistern has been reduced over the years. The picture next to the graph shows a toilet pan with a toilet cistern.



NOTE: 1 gallon = 3,785 litres

Use the information above to answer the questions that follow.

CONTEXT		LAYOUT OF DIAGRAMS, TABLES, IMAGES		GENERAL COMMENTS
X	Familiar		Accessible	<p>Perhaps a bit unfair or biased to have 2 questions on sanitation in Paper 1 and Paper 2 – same learners disadvantaged then if they don't understand or relate to the context?</p> <p>Repetition of the type of contextual question on sanitation - which is unfair to learners.</p>
X	Unfamiliar	X	Unaccessible	
X	Authentic & realistic	Comments:		
	Unauthentic & unrealistic	<p>Cistern toilet picture from above wouldn't clarify uncertainty – as we usually recognize a face-on toilet diagram.</p> <p>The term 'cistern' is also unfamiliar to many learners.</p>		
Comments:				
Unfamiliar for some learners who don't have access to toilets				

3.2.1 Calculate (in litres) the volume of water used during February 2022 by a family of five, if each person flushed the toilet an average of FOUR times a day during the month. (3)

PROPOSED MEMO
Litres of water = $1,6 \text{ gal} \times 3,785 \text{ l} \times 4 \text{ flushes per day} \times 28 \text{ days} \times 5 \text{ people}$ = $6,056 \text{ l} \times 560$ = $3\,391,36 \text{ l}$

TAXONOMY LEVEL	LANGUAGE	GENERAL COMMENTS
1: Knowing	X Accessible	Mark allocation should be higher – perhaps 5 marks vs 3 marks? Learners would need to think/check if February was a leap year or not. Heavy, multi-layered question with a lot of factors to consider all in one: ⇒ conversion ⇒ number of flushes per day ⇒ days in February (incl. leap year aspect) ⇒ family of 5
2: Applying routine procedures in familiar contexts	Unaccessible	
X 3: Applying multi-step procedures in a variety of contexts	Comments:	
4: Reasoning & reflecting		
Comments:		

3.2.2 State ONE way in which a person can save water in this context. (2)

PROPOSED MEMO
Flush the toilet less. OR
Put a brick in the toilet cistern. OR
Only flush when there is faecal matter. “If it is yellow let it mellow, but if it is brown flush it down” OR
Have a cistern that flushes different amounts of water for different business in the toilet OR
Have a cistern that flushes different amounts of water for different business in the toilet OR
Use pit latrines if you are in rural areas

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	A student who has never experienced drought conditions/water rationing may not understand this concept. Repetitive bias against learners who have no exposure to sanitation context.
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
X	4: Reasoning & reflecting			
Comments: The learner has to think beyond just mathematics and begin to apply everyday life common practices.				

QUESTION 3

Measurement

QUESTION 3.3

Ouma intends baking two milk tarts for her friends who will be arriving at 17:30. She uses the ingredients and information below. She can only bake one milk tart at a time. While the first milk tart is in the oven, she prepares the second milk tart in order to put it in the oven the moment the first one is taken out.

INGREDIENTS AND INFORMATION FOR ONE MILK TART

Preparation time 30 minutes	Cooking time 40 minutes	Temperature 325 °F
Serves 8 people		
3 tablespoons butter, melted 1 cup white sugar 3 egg yolks 1 cup cake flour $\frac{1}{4}$ teaspoon salt 1 teaspoon vanilla extract $4\frac{1}{4}$ cups of milk		

[Adapted from allrecipes.com]

NOTE: 1 cup = 250 ml

Use the information above to answer the questions that follow.

CONTEXT		LAYOUT OF DIAGRAMS, TABLES, IMAGES		GENERAL COMMENTS
X	Familiar	X	Accessible	Perhaps the word 'Gogo' should be used in place of 'Ouma' or perhaps another dish instead of 'milk tart' should have been presented – in order to be more representative and inclusive of South Africa's diverse culture.
	Unfamiliar		Unaccessible	
X	Authentic & realistic	Comments:		
	Unauthentic & unrealistic			
Comments:				

3.3.1 Ouma would like the second milk tart to be taken out of the oven 15 minutes before her friends arrive.

Determine the time Ouma must place the first milk tart in the oven. (3)

PROPOSED MEMO	
<p>17:30 – (2 x 40 minutes) = 17:30 – 80 minutes – 15 min = 17:30 – 30 min – 30 min – 30 min – 05 min = 15:55</p>	OR
<p>She must be done by 17h15 Second tart should be put in the oven: 17h15 – 40 mins = 16h35 First tart: 16h35 – 40 mins = 15h55 She must place the first tart in the oven at 15h55</p>	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	Learners may include preparation time – so could be confused
	2: Applying routine procedures in familiar contexts		Unaccessible	
X	3: Applying multi-step procedures in a variety of contexts	Comments:		The question is multi-layered, so perhaps 4 marks vs 3 mark allocation?
	4: Reasoning & reflecting			
Comments:				

3.3.2 Convert the baking temperature to degrees Celsius (°C), rounded to the nearest 10 degrees.

You may use the following formula: $^{\circ}\text{C} = (^{\circ}\text{F} - 32^{\circ}) \times \frac{5}{9}$ (3)

PROPOSED MEMO
$^{\circ}\text{C} = (^{\circ}\text{F} - 32^{\circ}) \times \frac{5}{9}$ $= (325 - 32^{\circ}) \times \frac{5}{9}$ $= 293 \times \frac{5}{9}$ $= 162,7777778$ $\approx 160^{\circ}\text{C}$

TAXONOMY LEVEL	LANGUAGE	GENERAL COMMENTS
1: Knowing	X Accessible	Predictable question.
X 2: Applying routine procedures in familiar contexts	Unaccessible	
3: Applying multi-step procedures in a variety of contexts	Comments:	
4: Reasoning & reflecting		
Comments:		

3.3.3 Determine how many litres of milk Ouma needs to bake the two milk tarts. (4)

PROPOSED MEMO
<p>One milk tart = $4,25 \text{ cups} \times 250 \text{ ml}$ = $1\ 062,5 \text{ ml}$</p> <p>Two milk tarts = $1\ 062,5 \text{ ml} \times 2$ = $2\ 125 \text{ ml}$</p> <p>$\therefore 2\ 125 \text{ ml} \div 1\ 000 = 2,125 \text{ litres}$</p>

TAXONOMY LEVEL	LANGUAGE	GENERAL COMMENTS
1: Knowing	X Accessible	
2: Applying routine procedures in familiar contexts	Unaccessible	
X 3: Applying multi-step procedures in a variety of contexts	Comments:	
4: Reasoning & reflecting		
Comments:		

QUESTION 4

Measurement and Maps & Plans (Integrated q's)

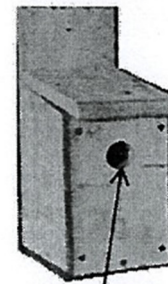
QUESTION 4.1

Itumeleng makes and sells birdhouses at a local flea market.

The diagram that follows shows the parts of the birdhouse and the assembly instructions.

He uses a single board that is 14 cm wide and 20 mm thick to make one birdhouse.

Picture of a completed birdhouse



Front exposed (part with hole)

Use the information to answer the questions that follow.

CONTEXT	
	Familiar
X	Unfamiliar
X	Authentic & realistic
	Unauthentic & unrealistic
Comments: Tricky for any student who has not been exposed to woodworking or construction experience.	
LAYOUT OF DIAGRAMS, TABLES, IMAGES	
X	Accessible
	Unaccessible
Comments: One needs to assume that the opposite sides of the shapes have the same measurements – except for Sides 1 & 2.	
GENERAL COMMENTS	
Learners complained about this question the most.	

DIAGRAM OF THE PARTS OF A BIRDHOUSE

[Adapted from www.SunCatcherStudio.com]

ASSEMBLY INSTRUCTIONS FOR THE BIRDHOUSE

STEP	WHAT TO DO
1	Nail the longest side of side 1 and side 2 to the back.
2	Position the floor between the two sides and the back and nail it in place.
3	Nail the front on the two sides and the floor.
4	Place the roof in position and nail it.

FINAL PRODUCT

4.1.1 Show (rounded to the nearest hundred) that the length of the board needed for a single birdhouse is 1 500 mm. (3)

PROPOSED MEMO
$L = (19 + 23 + 10 + 25 + 23 + 41) \times 10$ $= 1\,410\text{mm}$ $\approx 1\,400\text{ mm} \rightarrow \text{using rounding-off rules}$ $\approx 1500\text{mm} \rightarrow \text{rounding UP and in context ... so that you would have enough board for the birdhouses}$

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing		Accessible	Rounding off confusion may lead to a loss in time for learners.
	2: Applying routine procedures in familiar contexts	X	Unaccessible	
X	3: Applying multi-step procedures in a variety of contexts	Comments: Rounding off misleading – rules vs context		This question seems like it was worked out backwards and then the question was asked – unfair to learners. The 1 500 mm rounding off is contrived and unrealistic.
	4: Reasoning & reflecting			
Comments:				

4.1.2 Itumeleng stated that in Step 2, the 10 cm side of the floor will go against the back.

Verify, showing all calculations, whether his statement is CORRECT. (4)

PROPOSED MEMO	
<p>Thickness on either side = $20 \div 10$ = 2cm</p> <p>Width of floor to align with back = $14 \text{ cm} - 2 \text{ cm} - 2 \text{ cm}$ = 10cm</p> <p>∴ The statement is correct. OR</p>	
<p>The thickness of the sides = $20 \text{ mm} \div 10 = 2 \text{ cm}$</p> <p>Breadth of floor of birdhouse = thickness of side 1 + breadth of floor + thickness of side 2 = $2 \text{ cm} + 10 \text{ cm} + 2 \text{ cm}$ = 14 cm</p> <p>∴ Itumeleng's statement is correct. OR</p>	
<p>Board is 2 cm thick so the two boards will make 4 cm. This leaves 10 cm for the floorboard. The length will be placed against the 14 cm of the side boards.</p> <p>∴ The statement is correct.</p>	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing		Accessible	<p>Logic question – difficult to show via calculations.</p> <p>Learners will battle to visualize the scenario.</p> <p>Many learners will not consider the thickness of the board.</p>
	2: Applying routine procedures in familiar contexts	X	Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	<p>Comments: Question very unclear</p>		
X	4: Reasoning & reflecting			
<p>Comments: There is no direct way to approach this question, a learner will need to animate and shift the sides in one's head.</p>				

4.1.3 The front part of the birdhouse has a circular hole with a diameter of 4,2 cm drilled into it.

Calculate (in cm²) the exposed surface area of the front part of the birdhouse.

You may use the following formulae: Area of a rectangle = length × width

Area of a circle = 3,142 × (radius)² (6)

PROPOSED MEMO	
Area of front board = 23×14 = 322 cm ²	
Radius of hole = $4,2 \text{ cm} \div 2 = 2,1 \text{ cm}$	
Area of hole = $3,142 \times (2,1)^2$ = 13,85622 cm ²	
Exposed surface of front of birdhouse = $322 - 13,85622$ = 308,14378 cm ² $\approx 308,14 \text{ cm}^2$	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	
	2: Applying routine procedures in familiar contexts		Unaccessible	
X	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

QUESTION 4

Measurement and Maps & Plans (Integrated q's)

QUESTION 4.2

Itumeleng paints the exposed exterior surface area of the birdhouse.

The total surface area of the birdhouse that will be painted is 0,2888 m².

He applies three coats of paint according to the spread rate instructions on the paint tin, as follows:

- First coat: 10 m²/litre
- Subsequent coats: 14 m²/litre

Itumeleng stated that he will be able to paint seven birdhouses with 500 mℓ of paint.

CONTEXT		LAYOUT OF DIAGRAMS, TABLES, IMAGES		GENERAL COMMENTS
X	Familiar	X	Accessible	Painting and spread rates are a challenge.
	Unfamiliar		Unaccessible	
X	Authentic & realistic	Comments:		
	Unauthentic & unrealistic			
Comments:				

4.2 Verify, showing ALL calculations, whether this statement is CORRECT. (8)

PROPOSED MEMO	
<p>Total surface area of 7 birdhouses = $0,2888 \text{ m}^2 \times 7$ = $2,0216 \text{ m}^2$</p> <p>Paint needed for 1st coat = $\frac{2,02126 \text{ m}^2}{10 \text{ m}^2/\ell} = 0,202126 \ell$</p> <p>Paint needed for 2nd & 3rd coats = $\frac{2,02126 \text{ m}^2 \times 2}{14 \text{ m}^2/\ell}$ = $\frac{4,04252 \text{ m}^2}{14 \text{ m}^2/\ell}$ = $0,2887514286 \ell$</p> <p>Total paint needed for 7 birdhouses and 3 coats of paint = $0,202126 \ell + 0,2887514286 \ell$ = $0,4908774286 \ell$</p> <p>\therefore Total paint = $0,4908774286 \ell \times 1\,000 = 490,877 \text{ ml}$</p> <p>$\therefore$ Itumeleng will be able to paint 7 birdhouses with 500 ml of paint.</p>	<p>OR</p> <p>1st coat = $\frac{0,2888 \text{ m}^2}{10 \text{ m}^2/\ell} = 0,02888 \ell$</p> <p>2nd and 3rd coat = $\frac{2 \times 0,2888 \text{ m}^2}{14 \text{ m}^2/\ell}$ = $\frac{0,5776 \text{ m}^2}{14 \text{ m}^2/\ell}$ = $0,04125714286 \ell$</p> <p>1 birdhouse = $0,02888 \ell + 0,04125714286 \dots \ell$ = $0,07013714286 \ell$</p> <p>7 birdhouses = $7 \times 0,07013714286 \ell = 0,49096 \text{ litres}$</p> <p>No. ml = $0,49096 \ell \times 1\,000$ = $490,96 \text{ ml}$</p> <p>\therefore 500ml of paint is sufficient to paint 7 birdhouses.</p> <p>His statement is correct.</p>

4.2 Verify, showing ALL calculations, whether this statement is CORRECT. (8)

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	<p>The difference between the 1st and subsequent coats of paint is quite tricky.</p> <p>Spread rates are already challenging – now adding an additional layer of complexity.</p> <p>Only supposed to round off at the end, so working with multiple decimal points will be challenging for learners.</p> <p>Challenging question for only 8 marks.</p> <p>Learners will not be used to working with such low decimals – they may even think they have done something incorrectly.</p> <p>Many errors will occur when learners work with long decimal points (as we only round off at the end).</p> <p>Question should be set the other way around - paint expressed in litres.</p> <p>A very challenging question towards the end of the paper.</p>
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
X	4: Reasoning & reflecting			
Comments:				

QUESTION 4

Measurement and Maps & Plans (Integrated q's)

QUESTION 4.3

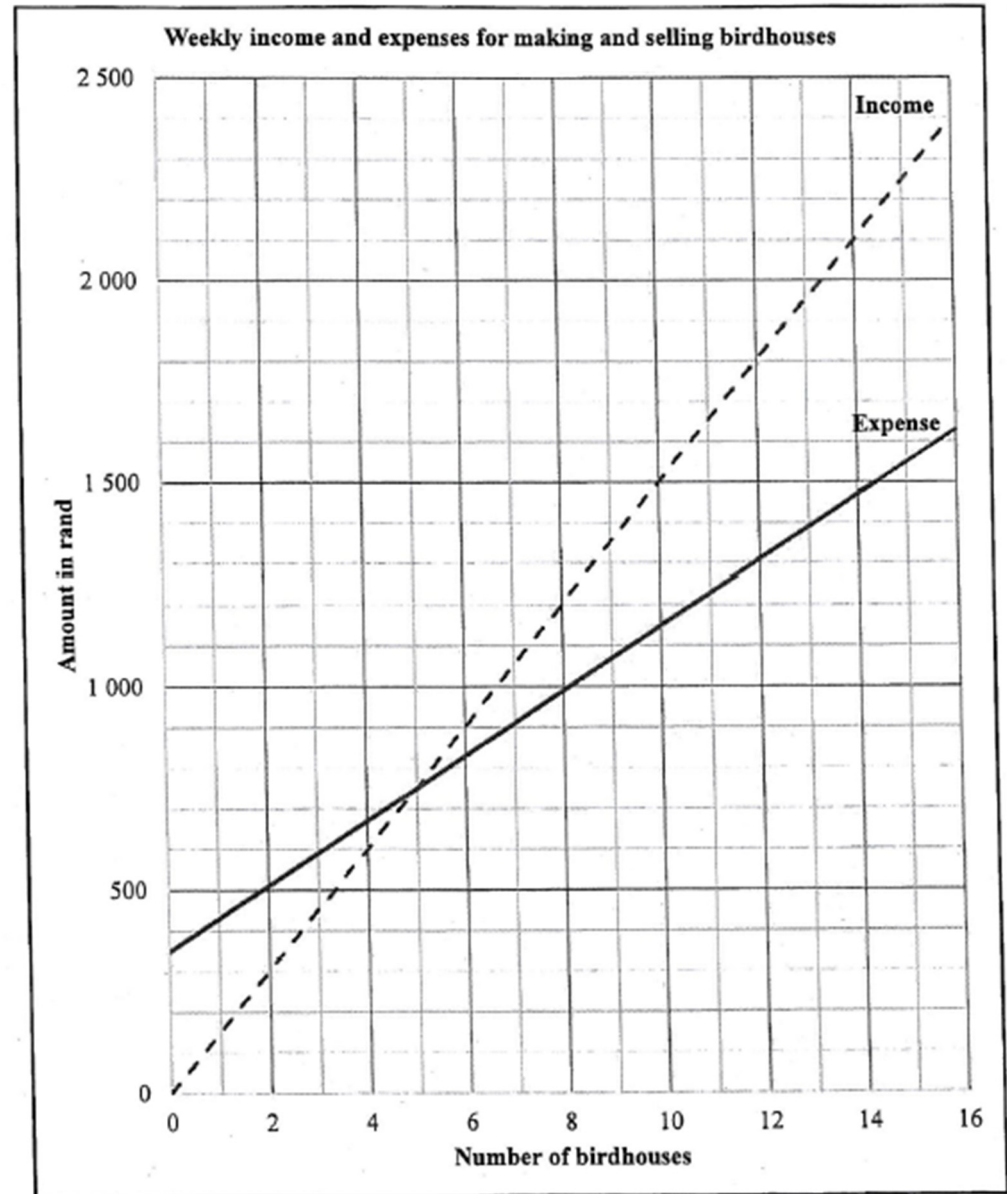
Itumeleng has the following expenses for his birdhouse business:

- Rental of the stall at the flea, R250 per week
- Transport, R100 per week
- Wooden boards, R287,40 for a bundle of six boards
- Paint, R21,40 per birdhouse

Below shows the graph representing Itumeleng's weekly income and expenses for his birdhouse business.

Use the graph and the information above to answer the questions that follow.

CONTEXT	
	Familiar
X	Unfamiliar
X	Authentic & realistic
	Unauthentic & unrealistic
Comments:	
Do learners know what 'Sundries' are?	
Perhaps the context of a 'vendor' should have been used in place of a 'flea market', in order to be more representative and inclusive of South Africa's diverse culture.	
LAYOUT OF DIAGRAMS, TABLES, IMAGES	
X	Accessible
	Unaccessible
Comments:	
GENERAL COMMENTS	
Word missing – should read 'Rental of the stall at the flea market, ...'	
Some schools were given an 'Error message' about the missing word 'market' in the exam.	



4.3.1 The equation to calculate his weekly expenses can be written as follows:

**Expenses = R350 + p × number of birdhouses made,
where p = variable cost for each birdhouse made**

(a) Show how the value of R350 (his fixed weekly cost) was calculated. (2)

PROPOSED MEMO	
Fixed weekly cost = R250 + R100 = R350	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	Might be a bit misleading to ask 'show how R350 calculated' when it can just be read off the graph?
X	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments: Show how – level 4?				

4.3.2 Explain break-even point in this context. (2)

PROPOSED MEMO	
<i>Break-even point</i> is the number of bird houses that need to be made for the income and expenses to be equal. OR	
<i>Break-even point</i> is when the income made from selling the birdhouses equals the expenses incurred for making the birdhouses.	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
X	1: Knowing → Recall definition	X	Accessible	Many learners will not apply the definition to the context. Mark allocation – should be 3 or 4 marks for defining it and then applying it to the context.
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
X	4: Reasoning & reflecting → Reflecting on context			
Comments:				

4.3.3 During one of the weeks, Itumeleng made 15 birdhouses, but only sold 12.

Show, by means of calculations, if he made a profit or a loss for that week. (4)

PROPOSED MEMO
<p>Expenses = R350 + R80 [Ans. Q4.3.1 (b)] × 15 birdhouses = R350 + R1 200 = R1 550</p> <p>Income for 12 birdhouses = R1 800 (read from the graph)</p> <p>Profit = R1 800 – R1 550 = R250</p> <p>∴ Itumeleng made a profit.</p>

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	<p>Since learners need to use their answers from Q4.3.1(b) – it will make marking difficult.</p> <p>Mark allocation should be higher – perhaps 6 marks vs the given 4 marks?</p> <p>⇒ 2 marks for expenses calculation ⇒ 2 marks for reading the income off the graph ⇒ 2 marks for calculating the profit</p>
	2: Applying routine procedures in familiar contexts		Unaccessible	
X	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

QUESTION 5

Measurement and Maps & Plans (Integrated q's)

QUESTION 5.1

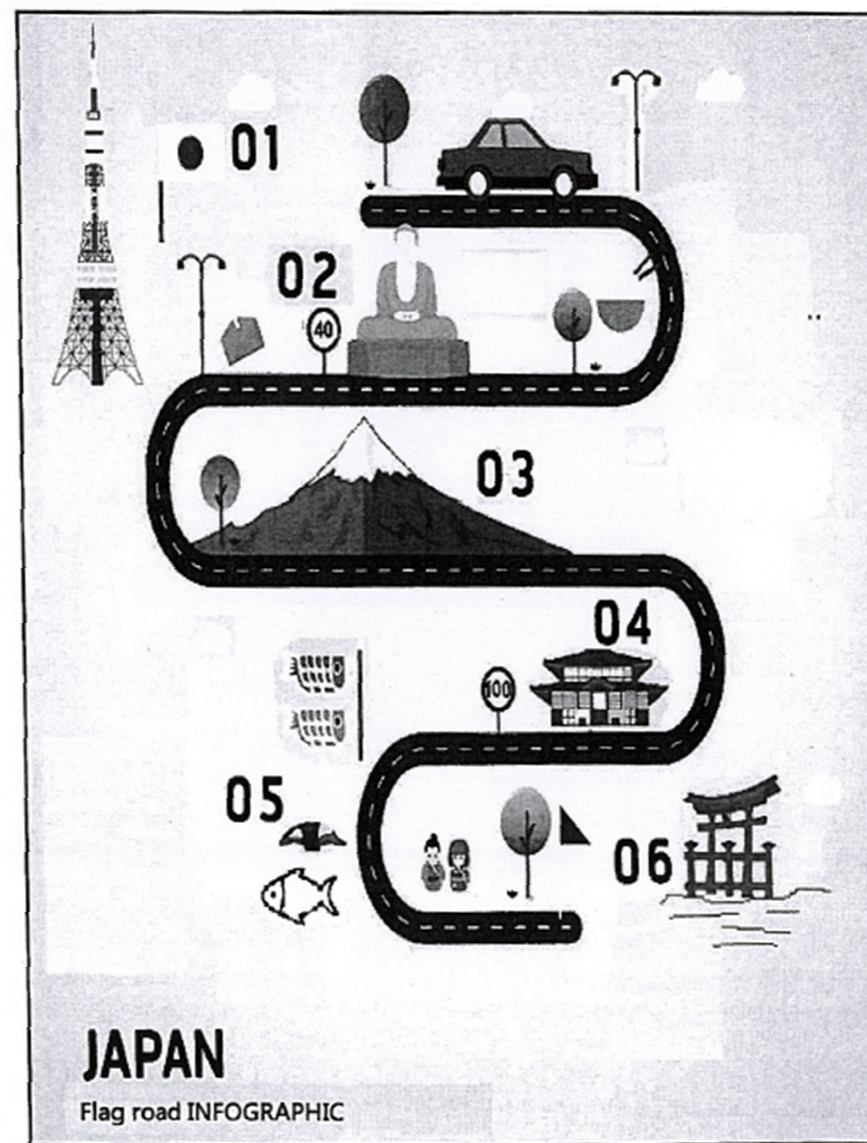
Danny and Susan are on their way to visit some of the tourist locations in Japan.

The diagram that follows shows a road infographic of their planned tour with the various tourist locations that would be visited.

Use the information above and the diagram to answer the questions that follow.

CONTEXT	
	Familiar
X	Unfamiliar
X	Authentic & realistic
	Unauthentic & unrealistic
Comments:	
LAYOUT OF DIAGRAMS, TABLES, IMAGES	
	Accessible
X	Unaccessible
Comments:	
‘Infographic’ would not be decipherable to 2 nd language speakers.	
There is no key to explain the term	
Some symbols might be very unfamiliar and unusual for learners.	
GENERAL COMMENTS	
Context and diagram is so unfamiliar that learners would have lost a lot of time trying to figure out the context and meaning of the infographic.	

ROAD INFOGRAPHIC OF JAPAN SHOWING TOURIST LOCATION DETAILS



[Adapted from [Vectorstock.com](https://www.vectorstock.com/)]

5.1.1 The tourist location details (in random order) for the tour are given below.

- (a) Start in Tokyo
- (b) Visit Mount Fuji
- (c) Visit the world's largest aquarium to see the different types of fish in Osaka
- (d) At Nara they plan to visit the large wooden temple and the deer park.
- (e) The trip will end at Itsukushima which is known for the Great Torri Gate that is standing in water at high tide.
- (f) Drive through Kamakura at a speed not exceeding 40 km/h.

Complete the table below by inserting the tourist location details in the correct order.

NOTE: Location details for 01 and 06 have been given in the table. (4)

PROPOSED MEMO	
01 – a	
02 – f	
03 – b	
04 – d	
05 – c	
06 – e	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing		Accessible	<p>Question should have been split up so that learners did not have to waste time copying the table to fill in their answers</p> <p>Marking will be tricky .</p>
X	2: Applying routine procedures in familiar contexts	X	Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting	<p>Tourist locations in 'Random order' should be more emphasized</p> <p>Heavy on reading for 2nd language learners.</p>		
Comments:				

QUESTION 5

Measurement and Maps & Plans (Integrated q's)

QUESTION 5.2

Mount Fuji is an active volcano. The last volcanic eruption was on 16 December 1707 and it followed several weeks after an earthquake on 11 November 1707.

CONTEXT		LAYOUT OF DIAGRAMS, TABLES, IMAGES		GENERAL COMMENTS
	Familiar	X	Accessible	
X	Unfamiliar		Unaccessible	
X	Authentic & realistic	Comments:		
	Unauthentic & unrealistic			
Comments:				

5.2.1 Calculate how many decades ago Mount Fuji erupted. (3)

PROPOSED MEMO
<p>Years since eruption = $2022 - 1707$ = 315 years</p> <p>\therefore Number of decades ago = $315 \text{ years} \div 10 \text{ years}$ = 31,5 decades</p>

TAXONOMY LEVEL	LANGUAGE	GENERAL COMMENTS
1: Knowing	X Accessible	Must learners round off? 0,5 decades is a bit odd for an answer?
X 2: Applying routine procedures in familiar contexts	Unaccessible	
3: Applying multi-step procedures in a variety of contexts	Comments:	
4: Reasoning & reflecting		
Comments:		

QUESTION 5

Measurement and Maps & Plans (Integrated q's)

QUESTION 5.3

In Tokyo they will visit the Tokyo tower which is a communication and observation tower. The tower is 1 092,1919 feet tall and has two viewing decks. The main deck is 150 m above the ground and the top deck is 250 m above the ground.

Some of the ticket prices per person are as follows:

TOKYO TOWER VIEWING DECKS		
	MAIN DECK	TOP DECK
Adult (19 years and older)	1 200 yen	3 000 yen
High school (16 to 18 years old)	1 000 yen	2 800 yen
Group reservation for main deck (group of 20 people or more, but less than 50)		
Adult	1 080 yen	
High school	900 yen	
Group reservation for main deck (group of 50 people or more)		
Adult	960 yen	
High school	800 yen	

Use the information above to answer the questions that follow.

CONTEXT		LAYOUT OF DIAGRAMS, TABLES, IMAGES		GENERAL COMMENTS
	Familiar	X	Accessible	<p>Why was the column with the prices for the top deck given when it's not used in any questions?</p> <p>Learners may lose time wondering how to include details of the top deck.</p>
X	Unfamiliar		Unaccessible	
X	Authentic & realistic	Comments:		
	Unauthentic & unrealistic			
Comments:				

5.3.1 Write, in simplified form, the ratio of the height above the ground of the main deck to the top deck. (2)

PROPOSED MEMO
150 m : 250 m 3 : 5

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	
X	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

5.3.2 Convert, in metres, the height of the tower if 1 m = 3,281 feet. (2)

PROPOSED MEMO
Height = $\frac{1\,092,1916 \text{ feet}}{3,281}$ = 332,883755 m ≈ 32,88 m

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	
X	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

5.3.3 Danny stated that if they had been in a group of 60 people observing from the main deck, they would have received 30% discount on an adult ticket.

Verify whether his statement is CORRECT showing ALL calculations. (6)

PROPOSED MEMO	
$\begin{aligned} \text{\% discount} &= \frac{1\,200 - 960}{1\,200} \times 100\% \\ &= \frac{240}{1\,200} \times 100\% \\ &= 20\% \end{aligned}$	
<p>∴ Danny's statement is INCORRECT.</p>	

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	<p>Would be a challenge if learners can't remember the % discount formula.</p> <p>Unfamiliar in terms of formula not given.</p> <p>Bit heavy on marks – possibly 4 or 5 marks rather?</p>
	2: Applying routine procedures in familiar contexts		Unaccessible	
	3: Applying multi-step procedures in a variety of contexts	Comments:		
X	4: Reasoning & reflecting			
Comments:				

QUESTION 5

Measurement and Maps & Plans (Integrated q's)

QUESTION 5.4

On their return journey Danny and Susan took a train from Hiroshima to Tokyo.

- The train left Hiroshima station at 08:06.
- It stopped at eight stations en route for 4 minutes at a time.
- It reached Tokyo at 12:04.
- The distance the train travelled is 816 km.

Use the information above to answer the questions that follow.

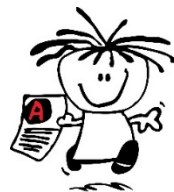
CONTEXT		LAYOUT OF DIAGRAMS, TABLES, IMAGES		GENERAL COMMENTS
	Familiar	X	Accessible	
X	Unfamiliar		Unaccessible	
X	Authentic & realistic	Comments:		
	Unauthentic & unrealistic			
Comments:				

5.4 Calculate the average speed at which the train travelled.

You may use the formula: $\text{Distance} = \text{speed} \times \text{time}$ (6)

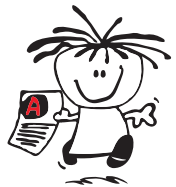
PROPOSED MEMO	
Elapsed time = 12 : 03 – 08 : 06 03 : 57 Time stopped = 8×4 mins = 32 minutes \therefore Travel time = 3 h 57 min – 32 mins = 3 h 25 min = $3 + \frac{25}{60}$ = 3,41666667 hours	$\text{Distance} = \text{speed} \times \text{time}$ 816 km = speed \times 3,41666667 h $\therefore \text{Speed} = \frac{816 \text{ km}}{3,41666667 \text{ h}}$ = 238,829283 km/h \approx 238,83 km/h

TAXONOMY LEVEL		LANGUAGE		GENERAL COMMENTS
	1: Knowing	X	Accessible	
	2: Applying routine procedures in familiar contexts		Unaccessible	
X	3: Applying multi-step procedures in a variety of contexts	Comments:		
	4: Reasoning & reflecting			
Comments:				

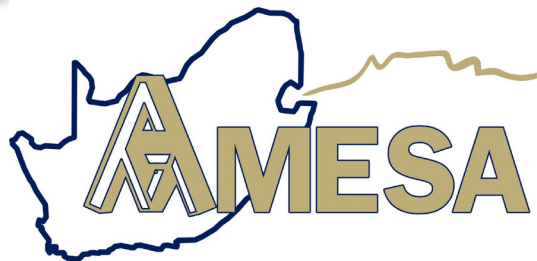


THANK YOU

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