GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PREPARATORY EXAMINATION

2024

MARKING GUIDELINES

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MATHEMATICAL LITERACY (PAPER 2) (10602)

9 pages

CODES	EXPLANATION
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
D	Define
J	Justification/Reason/Explain
S	Simplification
RT/RD/RG	Reading from a table/graph/diagram/map/plan
F	Choosing the correct formula
SF	Correct substitution in a formula
O	Opinion
P	Penalty, e.g. for no units, incorrect rounding-off, etc.
R	Rounding-off
NP	No penalty for rounding-off/omitting units

KEY TO TOPIC SYMBOLS:

M = Measurement; MP = Maps, Plans and other representations; P = Probability

QUESTION 1		ANSWER ONLY FULL MARKS (30 marks)			
Q	**Answer**		**Explanation**	**Topic Level**	**Mark**
1.1	1.1.1	R60 ✓✓ RG	2RG reading from the map	MP1	2
	1.1.2	West **OR** Westerly **OR** W ✓✓ RG	2RG reading from the map **Accept SW**	MP1	2
	1.1.3	Checkers Robertson ✓ RG Superspar Robertson ✓ RG	2RG reading from the map	MP1	2
	1.1.4	Robertson High School ✓✓ RG	2RG reading from the map	MP1	2
	1.1.5	Three minutes past/after eleven ✓✓ A	2A correct full answer	M1	2
	1.1.6	Street map /Road map✓✓ RG	2RG reading from the map	MP1	2
1.2	1.2.1	4 ✓✓ RD **OR** four	2RD reading from the diagram	MP1	2
	1.2.2	2 **OR** Two ✓✓ RD	2RD reading from the diagram	MP1	2
	1.2.3	Doors (Including sliding doors) : Windows 10 : 10 ✓ A 1 : 1 ✓ A	1A ratio in the correct order 1A simplifying **Accept** **Doors (excluding sliding doors) : Windows** **8 : 10** **4 : 5**	MP1	2
	1.2.4	Perimeter is the total length/distance around Mr Soetmelk's house/floorplan. ✓✓ A	2A explanation according to context	M1	2
	1.2.5	B ✓✓ A	2A correct option **Accept** **m^2**	M1	2
	1.3.1	240 g ✓✓ A	2A answer	M1	2
	1.3.2	55 ÷ 60 ✓ MA = 0,92 hours ✓ A	1MA dividing by 60 1A simplification **NPR**	M1	2

	1.3.3	Analogue ✓✓ A	2A correct type	M1	2
	1.3.4	16:30 ✓✓ A **OR** 04:30	2A correct time	M1	2
					[30]

QUESTION 2 **(27 marks)**

Q	Answer		Explanation	Topic Level	Mark
2.1	2.1.1	Kuruman ✓✓ RD	2RD correct town	MP1	2
	2.1.2	66 mm ✓✓ A	2A measurement Accept 64 mm – 66 mm	MP1	2
	2.1.3	Bar scale 80 km = 26 mm ✓ A Actual distance = $\frac{66 \text{ mm}}{26 \text{ mm}} \times 80$ km ✓ M ✓ M = 203,08 km ✓ CA	**CA from 2.1.2** 1A bar measurements 1M divide by 26 1M multiply by 80 1CA actual distance Accept 26 mm – 27 mm **NPR**	MP3	4
	2.1.4	Rural areas = 100% - 3,6% = 96,4% ✓ MA $\frac{96,4}{100}$ x 4 100 000 ✓ S = 3 952 400 people ✓ A **OR** $\frac{96,4}{100}$ x 4,1 million ✓✓ S = 3,9524 ✓ million people	1MA subtracting % 1S Simplification 1A number of people 2S Simplification 1A number of people	MP3	3
	2.1.5	$(1 \text{ km})^2 = (0,62137119 \text{ miles})^2$ $1 \text{ km}^2 = 0,38610216 \text{ miles}^2$ ✓ C Area of North-West in km^2 $= \frac{40\,495 \text{ miles}^2}{0,38610216 \text{ miles}^2}$ ✓ MCA = 104 881,5681 = 104 882 km^2 ✓ CA	1C to squares 1MCA dividing by conversation factor 1CA rounded area	M3	3

	2.1.6	Population of North-West = 4 100 000 Population density = 4 100 000 people ✓ SF 104 882 km^2 = 39,091 people/km^2 ✓ CA ≈ 39 people/km^2 ✓ R	**CA from 2.1.5** 1SF substituting values 1CA population density 1 Rounding	MP2	3

2.2	2.2.1	Number of trips = 30 ÷ 6 ✓M = 5 in the row ✓S Every 7 minutes = 5 × 7 minutes ✓M = 35 minutes ✓S Time to reach the top = 9:43 + 35 minutes ✓MA 10:18 am ✓CA	1M dividing values 1S simplifying 1M multiply 1S time 1MA adding 1CA arrival time	M3	6
	2.2.2	Time = 5 min × 60 = 3 00 sec ✓ C Distance = speed × time ✓ A = 5 m/s x 300 sec ✓ SF = 1 500 meters ✓ CA	1C conversion 1A changing the subject of the formula 1SF substituting values 1CA answer	M2	4
					[27]

QUESTION 3 **(32 marks)**

Q	Answer		Explanation	Topic Level	Mark
3.1	3.1.1	FALSE ✓ A, she lay on the 50th percentile. ✓ J	1A correct choice J reasoning	M4	2
	3.1.2	FALSE ✓ A, just about 50% were heavier than him. ✓ J	1A correct choice J reasoning	M4	2
	3.1.3	TRUE ✓✓ A	2O correct answer	M4	2
	3.1.4	TRUE ✓✓ A **OR** FALSE✓ A , the girl was closer to the 75th percentile curve while the boy was just above the 50th percentile curve. ✓ J	2J reasoning	M4	2
	3.1.5	FALSE ✓ A, the baby boy's mass increased just a little more than 122%. ✓ J	1A correct choice J reasoning	M4	2
3.2	3.2.1	550 mm x 840 mm ✓✓ A	2A correct dimensions	M1	2
	3.2.2	Circumference = 3,142 x 550 mm ✓ SF = 1 728,10 mm ✓ A	1SF substitution 1A answer **NPR**	M2	2

	3.2.3	<u>100 ℓ OLD GEYSER</u>: Surface area r = 550 mm ÷ 2 = 275 ✓ M = (2 × 3,142 × 275^2) + (2 × 3,142 × 275 × 840) ✓ M = 475 227,5 + 1 451 604 = 1 926 831,5 mm^2 ✓ CA <u>200 ℓ NEW GEYSER</u>: Surface area = 2 × π × r^2 + 2 × π × r × ℓ = (2 × 3,142 × 275^2) + (2 × 3,142 × 275 × 1470) ✓M = 475 227,5 + 2 540 307 = 3 015 534,5 mm^2 ✓ CA = <u>3 015 534,5 mm^2</u> ✓ MCA 2 = 1 507 767,25 mm^2 ✓ CA Therefore, Mr Masenya's claim is not correct ✓ O	1M for radius 1M substitution of values 1CA answer 1M substitution of values 1CA answer 1MCA dividing by 2 1CA correct answer 1O conclusion	M4	8
	3.2.4	**First error:** the diameter was used instead of dividing by 2 to get the radius. ✓✓ O **Second error:** the conversion from mm^3 to cm^3 was done incorrectly. Thus, it was divided by 10 instead of 10^3 or 1 000. ✓✓ O **OR** Did not use 3,142 value of pi in the calculation.	2O first error 2O second error	M4	4
	3.2.5	3,142 × 275^2 × 1 470 mm ✓ SF = 349 292 212,5 mm^3 ÷ 1 000 ✓ C = 349 292,2125 cm^3 ÷ 1 000 ✓ C = 349,292 ℓ ✓ CA	1SF substituting values 1C converting to cm^3 1C converting to litres 1CA correct answer	M3	4
	3.2.6	Yes. ✓ O because he is getting more than 200 litres. ✓ J. **OR** No, because he is getting more than 200 litres which would potentially increase his electricity bill.	1O Yes or No 1J reasoning	M4	2
					[32]

QUESTION 4					(32 marks)
Q	**Answer**		**Explanation**	**Topic Level**	**Mark**
4.1	4.1.1	$117\ m^2 = \ell \times 5,5\ m$ ✓ SF $\ell = \frac{117\ m^2}{5,5\ m}$ ✓ M $\ell = 21,27\ m$ ✓ A	1SF correct substitution 1M changing the subject of the formula 1A correct answer	M2	3
	4.1.2	8 + 4,8 + 8 + 4,8 ✓ MA = 25,6 m ✓ CA **OR** P = 2(8 + 4,8) = 25,6 m ∴ 36 m of railing will be enough ✓ O	1MA adding all four values 1CA correct length 1O conclusion	M4	3
	4.1.3	The areas are not all calculated correctly. ✓ J Saloon: 13 m x 4,75 m area = $61,75m^2$ ✓ A Upper deck: 8 m x 4,8 m area = $38,4m^2$ ✓ A	1J identifying errors 2A fixing errors	M4	3
4.2	4.2.1	Height B = 39,5 cm/100 = 0,395 m ✓ C Along the length of the deck Lengthwise = $\frac{8\ m}{0,65\ m}$ ✓ M = 12,3076 ✓ CA = 12 boxes ✓ R Widthwise = $\frac{4,8\ m}{0,42\ m}$ ✓ M = 11,4285 = 11 boxes ✓ CA Height = $\frac{0,9\ m}{0,395}$ = 2,278 = 2 boxes ✓ CA Total boxes to be packed = 12 x 11 x 2 ✓ MCA = 264 boxes ✓ CA	1C converting height 1M dividing lengths 1CA correct answer 1R rounding down 1M dividing width 1CA whole boxes 1CA whole boxes 1MCA multiplying values 1CA total number of boxes	MP3	9

	4.2.2	Length/widthwise = $\frac{8\text{ m}}{0{,}42\text{ m}}$ = 19,0476 = 19 boxes ✓ M Width/Lenghtwise = $\frac{4{,}8\text{ m}}{0{,}65\text{ m}}$ = 7,384615 = 7 boxes ✓ M Height = $\frac{0{,}9\text{ m}}{0{,}395}$ = 2,278 boxes = 2 boxes ✓ M Total boxes = 19 x 7 x 2 ✓ MCA = 266 boxes ✓ CA Therefore, the claim is invalid ✓ O	1M number of boxes 1M number of boxes 1M number of boxes 1MCA multiplying all three values 1CA answer 1O conclusion	MP3	6
4.3	4.3.1	Number of people on the cruise ship = 66 Probability of female passenger = $\frac{31}{66}$ ✓ A × 100 ✓ A = 46,97% ✓ CA	1A numerator 1A denominator 1CA answer **NPR**	P2	3
	4.3.2	Probability (not a crew member) = 66 – 12 = 54 ✓ M $\frac{54}{66}$ ✓ A ✓ A	1M total number of people 1A numerator 1A denominator **AO**	P2	3
	4.3.3	Probability is the chance of picking a particular person out of all the people on the sailing ship. ✓✓ J	2D explanation of probability	P1	2
					[32]

QUESTION 5					(26 marks)
Q	**Answer**		**Explanation**	**Topic Level**	**Mark**
5.1	5.1.1	NOTE: use measurements from the printed copy. 15 cm : 1 186 km ✓ M 15 cm : 118 600 000 ✓ C ~~15 cm~~ : 118 600 000 ~~cm~~ ✓ M ~~15 cm~~ 15 ~~cm~~ 1 : 7 906 666,667 ✓ CA ≅ 1 : 8 000 000 ✓ R	1M ratio format 1C converting to cm 1M simplifying 1CA scale in unit form 1R scale in rounded form	MP3	5
	5.1.2	Speed = 1 405 km ✓✓ M 13,5 h = 104,074 km/h ✓ A = 104 km/h ✓ R	2M substitution 1A answer 1R rounded answer	MP3	4
	5.1.3	13,5 ÷ 2 ✓ M = 6,75 = 6 rests ✓ A (not 7, because Jongi would have arrived at destination during the last rest). ✓ MCA ∴ 6 × 15 minutes = 90 minutes = 1 hour 30 minutes ✓ CA ✓ MCA ∴ Journey = 13 hours 30 minutes + 1 hour 30 minutes = 15 hours ✓ CA	1M dividing driving time 1A number of rests 1MCA calculating rest time 1CA total rest time 1MCA addition of time 1CA total travelling time	MP3	6
5.2	5.2.1	Step 3: Attach left and right side panels ✓✓ **A** Step 4: Attach the top surface with cam locks, cam pins, and dowels. Then insert the four leveling glides ✓✓ **A** Step 5: Insert shelf pins into holes along the interior sides. Place the shelf on top of the pins. ✓✓ **A** **NOTE: Read what the candidate has written and award marks if it makes sense**	2A step 3 instructions 2A step 4 instructions 2A step 5 instructions	MP2	6

	5.2.2	To assist with the assembling and lifting of parts. ✓✓ O	2A reasoning	MP4	2
	5.2.3	Screwdriver ✓✓ A	2A tool	MP1	2
	5.2.4	✓ M ✓ M Total surface area = 2(700 x 350) + 2(700 x 690) + 2(350 x 690) = 490 000 + 966 000 + 483 000 ✓ M = 19 390 1 939 000 mm^2 ÷ 10^2= 19 390 cm^2 ✓ CA	2M substitution 1M simplification 1CA answer in cm^2	M3	4
					[29]
				TOTAL:	**150**