higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

MATHEMATICAL LITERACY
(First paper)
NQF LEVEL 2

23 November 2020

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/drawing/document/map
F	Choosing correct formula
SF	Substitution in formula
MF	Manipulation of formula
R/J	Reasoning/Justification
P	Penalty, e.g. for no units, incorrect rounding off, etc.
R	Rounding off
E	Explanation

This marking guideline consists of 8 pages.

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QUESTION 1

(Do not deduct marks if the 'R'-sign is omitted. If the answer is correct, allocate the mark.)

QUESTION		SOLUTION	EXPLANATION	
1.1	1.1.1	½ (9 – 1) + $\sqrt{49}$ = ½(8) + 7✓ = 4 + 7 = 11✓ (answer only 1 mark)	1S 1A	(2)
	1.1.2	$4^2 \times 2 + 8$ = 16 × 2 + 8 = 32 ✓+ 8 = 40✓ (answer only 1 mark)	1S 1A	(2)
1.2		5 500 g ÷ 1 000✓ = 5,5 ✓kg (answer only full marks)	1M 1A	(2)
1.3		$\frac{18}{35} \times 100$ ✓ = 51,428✓% Rounded off to 51✓%	1M 1A 1R	(3)
1.4	1.4.1	14:30✓	1A	(1)
	1.4.2	14:30✓ - 08:00✓ 06:30 The duration is 6 hours and 30 minutes.✓ OR 08:00 – 14:00 = 6 hours✓ 14:00 – 14:30 = 30 minutes✓ The duration is 6 hours and 30 minutes.✓ (Or any other suitable method)	2M 1A	(3)
1.5	1.5.1	Red : green 1 : 4 5 : green green = 4 × 5✓ = 20✓ litres (answer only full marks)	 1M 1A	(2)
	1.5.2	5 ℓ red + 20 ℓ✓ green = 25 litres yellow ✓ (answer only full marks)	1M 1A	(2)

	1.5.3	R255✓ ÷ 5 ✓ = R51✓ per ℓ	2M 1A	(3)

1.6	$\frac{12}{100} \times$ R3 550 OR $\frac{88}{100}$✓ × R3 550✓ = R426,00✓ = R3 124,00✓ ∴ R3 550 – R426,00✓ = R3 124,00✓		2M 1A	(3)

1.7	25 ; 0 ; -3 ; -50 ✓ ✓ 1 mark per two correct order	2A	(2)

1.8	1.8.1	$\frac{1}{10} \times 100$✓ = 10 red marbles✓ (answer only full marks)	1M 1A	(2)

	1.8.2	½ of 100 = 50✓ blue marbles Therefore 100 – 10 – 50✓ = 40 ✓yellow marbles Or $\frac{4}{10}$ ✓ × 100✓ = 40✓ marbles	2M 1A	(3)
				[30]

QUESTION 2

(Do not allocate marks for units, unless stipulated)

2.1	2.1.1	Right angled triangle✓ Accept: triangle	1A	(1)

	2.1.2	Rectangular prism✓	1A	(1)

	2.1.3	AC = $\sqrt{AB^2 + BC^2}$ = $\sqrt{4^2 + 4^2}$✓ = $\sqrt{32}$✓ = 5,66 ✓m	1SF 1 A 1R	(3)

	2.1.4	A = (3,14 × 1²)✓ ÷ 2✓ = 1,57✓ m²✓	1SF 1M(÷ 2) 1A 1U	(4)

	2.1.5	V = l × b × d = 5 × 3✓ × 1,5✓ = 22,5✓ m³✓	1SF 1A 1 U	(4)

	2.1.6	C = πd C = 3,14 × 3✓ = 9,42✓ m	1SF 1A	(2)

2.2	2.2.1	C2✓✓	2RM	(2)

	2.2.2	Baton Rouge✓ Accept: Baton	1RM	(1)

	2.2.3	Southwest✓	2RM	(2)

	2.2.4	1 cm = 50 km✓	1RM	(1)

	2.2.5	1 cm = 50 km 3,2 cm = ? km Distance = 3,2✓ × 50✓ = 160✓ km	2M 1A	(3)

	2.2.6	Monroe✓	1RM	(1)

2.3	2.3.1	7✓	1RD	(1)

	2.3.2	6✓	1RD	(1)

	2.3.3	Blue✓	1RD	(1)

	2.3.4	To warn vehicles that travel behind the trailer when the driver brakes or indicates to turn left or right. ✓✓ (Any other reasonable answer.) (TWO marks for ONE reason)	2R/J	(2)
				[30]

QUESTION 3

(Do not deduct marks if the 'R'-sign is omitted. If the answer is correct, allocate the mark.)

3.1	3.1.1	R100 × 5✓ = R500✓ **(Answer only full marks)**	1M 1A	(2)
	3.1.2	R150 × 5✓ = R750✓ **(Answer only full marks)**	1M 1A	(2)
	3.1.3	**BUDGET FOR LERATO'S SCHOOL TOUR** INCOME: Money from parents R 2 000 ✓ EXPENSES: Transport R 650 ✓; Accommodation R 1 350 ✓; Food R 500 ✓; Spending Money R 750 ✓ TOTAL INCOME: R2 000 ✓ TOTAL EXPENSES: R3 250 ✓ SURPLUS/DEFICIT: R1 250 deficit ✓ or -R1 250	1A income 1A Trans. 1A Acc. 1CA Food 1CA spend. 1CA tot inc. 1CA tot exp. 1CA deficit	(8)
	3.1.4	Get a part-time job. Ask for donations from family and friends. ✓ (Any other logical/reasonable suggestion)	1R/J	(1)
3.2	3.2.1	Till Slip/Receipt/invoice✓	1RT	(1)
	3.2.2	Ben Stevens✓	1RT	(1)
	3.2.3	$A = \frac{100✓}{115✓} \times R127,40 = R110,78✓$	2M 1A	(3)
	3.2.4	B = R127,40 – R110,78✓ = R16,62✓ OR $B = \frac{15}{115}✓ \times R127,40 = R16,62✓$	1M 1CA 1M 1A	(2)
	3.2.5	C = R200 – R127,40✓ = R72,60✓ **(Answer only full marks)**	1M 1A	(2)

3.3	3.3.1	**SAVINGS DEPOSIT** Date **25 June 2019** ✓ Name **Danny West** ✓ Account Number **1652 1870** ✓ CASH **1 400** ✓ **00** CHECKS Subtotal Less Cash TOTAL **1 400** ✓ **00** 1 mark each as indicated	5A	(5)

	3.3.2	R1 400 ÷ R100 = 14✓ Thus R8,07 + R1,82(14) ✓ = R8,07 + R25,48 = R33,55✓	1A 1SF 1CA	(3)
				[30]

QUESTION 4

(Do not deduct marks if the 'R'-sign is omitted. If the answer is correct, allocate the mark.)

4.1	4.1.1	A:	R50 × 1✓ = R50✓	1S 1A	
		B:	R50 × 2✓ = R100✓	1SF 1A	
		C:	R150 ÷ R50✓ = 3 tickets✓	1SF 1A	
		D:	R400 ÷ R50✓ = 8 tickets✓	1SF 1A	
		(Answers only full marks)		(4 × 2)	(8)

	4.1.2	R200✓✓	2MA	(2)

	4.1.3	R50✓ ÷10✓ = R5✓ per lap	2MA 1A	(3)

	4.1.4	4 tickets for 1 race (Rambo and his 3 friends) = R200✓ R200 × 5 races✓ = R1 000✓	1CA (4.1.2) 1M 1A	(3)

	4.1.5	Dependent: Cost in Rand✓ Independent: Number of tickets✓	2A	(2)

	4.1.6	Direct proportion✓ As the number of tickets increases✓ the cost in Rand increases in the same proportion✓	1A 2R/J	(3)

	4.1.7	Constant difference✓	1A	(1)

4.1.8	 1 mark (0;0)✓ 1 mark (5;250)✓ 2 marks (Any 2 other correct points)✓✓ 1 mark correct line✓	(8)
		[30]

QUESTION 5
(Do not deduct marks if the 'R' sign is omitted. Full marks answer only.)

5.1.	5.1.1	5km/h and 97 km/h✓	2RT	(2)

	5.1.2	97 71 70 65 65 64 64 ✓ 62 60 59 57 56 50 5✓	2 A	(2)

	5.1.3	mean $= \frac{97+71+\cdots+16}{14}$✓ $= \frac{845}{14}$✓ $= 60{,}36$ km/h✓	1 MA 1A (sum) 1CA (2 decimals)	(3)

	5.1.4	5 50 56 57 59 60 62 — Median $= \frac{62+64✓}{2✓} = 63$✓ km/h 64 64 65 65 70 71 97	2M 1A 23,5	(3)

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	5.1.5	mode = 64 km/h✓ and 65 km/h✓	2RT	(2)

	5.1.6	Range = 97✓ − 5✓ = 92 km/h✓	2RT/M 1A	(3)

	5.1.7	Median✓, because of the 2 outliers the mean is not appropriate and the mode does not consider all values in the data set.✓	1A 1R/J	(2)

	5.1.8	Yes✓, the average speed against all central tendencies are above the speed limit✓	1A 1R/J	(2)

5.2	5.2.1		2RT 2RT 2RT 1A	

INTERVAL IN RAND	TALLY	FREQUENCY
0–399	IIII	4
400–799	~~IIII~~ I✓	6✓
800–1 199	IIII✓	4✓
1 200–1 499	I✓	1✓
	TOTAL	15✓

		Each tally and corresponding frequency must be correct for 2 marks per line		(7)

	5.2.2	Pillow fight✓	1RT	(1)

	5.2.3	Coin toss✓	1RT	(1)

	5.2.4	154 + 678 + 795 + 946 + 444 + 1240 + 587 + 198 + 1128 + 309 + 605 + 469 + 888 + 912 + 394✓ = R9 747✓ **(Answers only full marks)**	1M 1A	(2) [30]

TOTAL: 150

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