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MARKING GUIDELINES / NASIENRIGLYNE

EXAMINATION / EKSAMEN	NATIONAL SENIOR CERTIFICATE / NASIONALE SENIOR SERTIFIKAAT
GRADE / GRAAD	12
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SUBJECT / VAK	MATHEMATICAL LITERACY / WISKUNDIGE GELETTERHEID
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SOUTH AFRICAN COMPREHENSIVE ASSESSMENT INSTITUTE
SUID-AFRIKAANSE KOMPREENSIEWE ASSESSERINGSINSTITUUT

Symbol/Kode	Explanation/Verduideliking
M	Method/Metode
MA	Method with accuracy/Metode met akkuraatheid
CA	Consistent accuracy/Volgehoute akkuraatheid
A	Accuracy/Akkuraatheid
C	Conversion/Herleiding
S	Simplification/Vereenvoudiging
RT	Reading from a table/graph/document/diagram/Lees vanaf tabel/grafiek/dokument/diagram
SF	Correct substitution in a formula/Korrekte vervanging in 'n formule
O	Opinion/Explanation/Opinie/Verduideliking
P	Penalty, e.g. for no units, incorrect rounding off, etc./Penalisasie, bv. vir geen eenhede, verkeerde afronding, ens.
R	Rounding off/Afronding
NPR	No penalty for rounding/Geen penalisasie vir afronding nie
AO	Answer only/Slegs antwoord
MCA	Method with consistent accuracy/Metode met volgehoute akkuraatheid
RCA	Rounding consistent with accuracy/Afronding met volgehoute akkuraatheid

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out (cancelled) an attempt to a question and NOT redone the solution, mark the crossed out (cancelled) version.
- Consistent accuracy (CA) applies in ALL aspects of the marking guidelines; however it stops at the second calculation error.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra item presented.
- Rounding is an independent mark.
- General principle of marking, if the candidate makes one mistake he loses one mark.
- A conclusion mark can only be given if relevant calculations precedes it.

LET WEL:

- As 'n kandidaat 'n vraag TWEE KEER beantwoord, sien slegs die EERSTE poging na.
- As 'n kandidaat 'n antwoord van 'n vraag doodtrek (kanselleer) en nie oordoen nie, sien die doodgetrekte (gekanselleerde) poging na.
- Volgehoute akkuraatheid (CA) word in ALLE aspekte van die nasienriglyne toegepas; dit hou egter op by die tweede berekeningsfout.
- Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra item.
- Afronding tel as 'n afsonderlike punt.
- Die algemene beginsel van merk as 'n leerder een fout maak verloor hy een punt.
- 'n Gevolgtrekkingspunt kan slegs gegee word indien relevante berekeninge dit voorgaan.

QUESTION 1 / VRAAG 1 [30]			
No.	Answer / Antwoord	Explanation / Verduideliking	Level & Topic
1.1.1	Bedford Street / Straat ✓✓RT	2 RT Bedford Street (2)	L1 MP
1.1.2	B ✓✓RT Floor plans / Vloerplanne	2 RT B (2)	L1 MP
1.1.3	1:75 ✓✓RT	2 RT 1:75 (2)	L1 MP
1.1.4	Number scale / Getal skaal ✓✓RT	2 RT Number scale (2)	L1 MP
1.1.5	ONE / EEN ✓✓RT	2 RT ONE (2)	L1 MP
1.1.6	$\frac{4}{10} = \frac{2}{5}$ ✓A ✓A	1 A Numerator 1 A Denominator (2)	L1 P
1.1.7	Joey ✓✓RT	2 RT Joey (2)	L1 M
1.1.8	False / Onwaar ✓✓RT	2 RT False (2)	L1 MP
1.1.9	Rectangular / Reghoekig ✓✓RT	2 RT Rectangle (2)	L1 M
1.1.10	A ✓✓RT	2 RT correct letter A (2)	L1 M
1.1.11	C ✓✓RT	2 RT correct letter C (2)	L1 M
1.2	\$15,99 × 18,21 = R291,18 TRUE / WAAR ✓✓RT	2 RT TRUE (2)	L1 F
1.3.1	10 Seasons / Seisoene ✓✓RT	2 RT correct value (2)	L1 M
1.3.2	A = 8 hours / ure × 60 + 25 min ✓ MA A = 480 min + 25 min A = 505 minutes ✓ A OR A = 5213 min – (528×3+549 +527+530+506 +577+435) A = 5213 min – 4708 min ✓ MA A = 505 min ✓ A	1 MA correct method 1 A 505 min OR 1 MA correct method 1 A 505 min (2)	L1 M
1.3.3	B ✓✓RT	2 RT correct letter B (2)	L1 M
[30]			

QUESTION 2 / VRAAG 2 [52]			
No.	Answer / Antwoord	Explanation / Verduideliking	Level & Topic
2.1.1	Time / Tyd = Preparation / Voorbereiding + Cooking / Kook Time = 5 min + 25 min ✓ MA Time = 30 minutes ✓ A	1 MA adding correct values 1 A 30 minutes (2)	L1 M
2.1.2	Sugar / Suiker = 84,64 ounces × 28,3495 ✓ MA Sugar = 2399,50168 grams ÷ 1000 ✓ C Sugar = 2,39950168 ✓ A Sugar ≈ 2,4 kg ✓ RO	1 MA multiply 28,3495 1 C convert to kg 1 A 2,39950168 1 RO must be up (4)	L3 M
2.1.3	Water = 33,79 floz. × 29,5735 ✓ MA Water = 999,288565 ml ÷ 250 ml ✓ C Water = 3,99715426 ✓ A Water ≈ 4 cups ✓ RO	1 MA multiply 29,5735 1 C convert to cups 1 A 3,99715426 1 RO must be up (4)	L3 M
2.1.4	<u>Temperature / Temperatuur:</u> °C = $\frac{5}{9} \times (266 - 32)$ ✓ SF °C = 130° ✓ A	1 SF 226 1 A 130 degrees Celsius (2)	L2 M
2.1.5	Small / Klein : Large / Groot ✓ RT 12: 4 3:1 ✓ MA	1 RT small is 12 1 RT large is 4 1 A ratio of 3:1 (3)	L2 M
2.1.6	Cost / Koste = R106,02 ÷ 12 = R8,835 ≈ R8,84 ✓ MA ✓ RT Profit / Wins = 21 ✓ MA × (R15 – R8,84) Profit = 21 × R6,16 Profit = R73,92 ✓ A	1 MA cost price 1 RT selling price 1 MA × 21 1 A Profit (4)	L3 F
2.2.1	Radius (medium) = (100 mm ✓ RT ÷ 10) ÷ 2 Radius (medium) = 10 cm ÷ 2 ✓ MA Radius (medium) = 5 cm ✓ A	1 RT 100 mm 1 MA divide 2 1 A 5 cm (3)	L2 M
2.2.2	Diameter / Deursnee (large/groot) = 5,9 × 2,54 ✓ MA Diameter (large) = 14,986 ✓ A Diameter (large) = 15 cm ✓ RO	1 MA multiply 2,54 1 A 14,896 1 RO 15 cm (3)	L2 M

2.2.3	C (small / klein) = $2 \times 3,142 \times 2,5$ ✓MA C (small) = 15,71 cm ✓A ✓U	1 MA multiply radius 2,5 1 A 15,71 1 U correct unit cm (3)	L2 M
2.2.4	Area (Large/groot) = $3,142 \times (7,5 \text{ cm})^2$ ✓MA Area (Large/groot) = 176,7375 cm² ✓A Area (Small/klein) = $3,142 \times (2,5 \text{ cm})^2$ ✓MA Area (Small/klein) = 19,6375 cm² ✓A Small/Klein: Large/Groot $19,6375 \text{ cm}^2 : 176,7375 \text{ cm}^2$ 1:9 ✓M Her statement is incorrect ✓J it is 9 times./ Haar stelling is verkeerd, dit is 9 keer	1 MA multiply radius 7,5 1 A 176,7375 cm² 1 MA multiply radius 2,5 1 A 19,6375 cm² 1 M any correct method resulting = 9 1 J incorrect (6)	L4 M
2.2.5	Perimeter / Omtrek ✓✓RT	2 RT Perimeter (2)	L1 M
2.3.1	Width / Wydte = 1 cm + 15 cm ✓RT + 1 cm ✓MA Width / Wydte = 17 cm ✓A	1 RT 15 cm (diameter) 1 MA adding 2 x 1 cm 1 A 17 cm (3)	L2 M
2.3.2	Length / Lengte = 1 + 15 ✓RT + 1 + 2 ✓MA Length / Lengte = 19 cm ✓A	1 RT 15 cm (diameter) 1 MA adding 2 x 1 cm + 2 cm 1 A 19 cm (3)	L2 M
2.3.3	No, she is not correct ✓J as the 17 by 17 does not have the <u>2 cm</u> extra plastic that sticks to the lollipop stick. ✓✓RT Nee, sy is verkeerd want die 17 by 17 het nie die ekstra 2cm plastiek wat moet op die stokkie plak nie She should rather take the 17 by 23 ✓A option. Sy moet eerder die 17 by 23 opsie kies.	1 J not correct 2 RT 2 cm extra 1 A correct one 17 by 23 size (4)	L4 M
2.3.4	Cost / Koste: ✓RT ✓MA $R159,87 + (R159,87 \times 15 \div 100)$ = R183,87 ✓A	1 RT R159,87 1 MA 15% 1 A R183,87 (3)	L2 F



2.3.5	Probability / Waarskynlikheid (width / wydte 8 cm) = $\frac{4}{35} \times 100$ ✓RT Probability / Waarskynlikheid (width / wydte 8 cm) = 11,23% ✓A	1 RT 4 out 35 1 MA ×100 1 A 11,23% (3)	L2 P
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QUESTION 3 / VRAAG 3 [36]			
No.	Answer / Antwoord	Explanation / Verduideliking	Level & Topic
3.1.1	Year / Jaar = 2022 – 150 years / Jare✓MA Year / Jaar = 1872✓A	1 MA subtract correct values 1 A 1872 (2)	L2 M
3.1.2	North / Noord✓✓RT	2 RT North (2)	L2 MP
3.1.3	Three states / Drie State✓✓RT	2 RT Three states (2)	L1 MP
3.1.4	2,2 million / miljoen × 1 000 000✓C Acres Montana = 2 200 000 × 3 ÷ 100✓RT Acres Montana = 66 000 acres✓MA	1 C convert millions 1 RT 3% 1 MA 66 000 acres (3)	L3 M
3.1.5	✓RT ✓MA Area = 3468,4 sq. miles ÷ 3,86102 Area = 898,3118451 × 10✓MA Area = 8983,118451✓A Area = 8983 km ² ✓RO	1 RT 3468,4 sq. miles 1 MA ÷ 3,86102 1 MA × 10 1 A 8983,118451 1 RO 8983 km ² (5)	L3 M



3.1.6	✓RT 2,2 million × 1 000 000 Square miles = 2 200 000 ÷ 640 ✓C Square miles = 3437,5 ✓A Not the same as given/ <i>Nie dieselfde as gegewe</i> 3468,4 sq. miles ✓RT Acres = 3468,4 × 640 ✓C Acres = 2 219 776 ✓A Not the same as given / <i>Nie dieselfde as gegewe</i> 2,2 million It is not the same as the values given in article. / <i>Dit is nie dieselfde as die waardes gegee in die artikel nie.</i> ✓J The 2,2 million is rounded to make it easier for the reader (easier to read). / <i>Die 2,2 miljoen is afgerond om dit makliker te maak vir die leser (makliker om te lees)</i> ✓J	1 RT 2,2 million 1 C convert to sq. miles 1 A 3437,5 1 RT 3468,4 sq. miles 1 C convert to acres 1 A 2 219 776 1 J not the same 1 J round off (8)	L4 M
3.2.1	Route / <i>Roete</i> 89 (N to S) ✓RT Route / <i>Roete</i> 20 (E to W) ✓RT	1 RT Route 89 1 RT Route 20 (2)	L2 MP
3.2.2	Route / <i>Roete</i> 191 ✓✓RT	2 RT Route 191 (2)	L2 MP
3.2.3	5 entrances / <i>ingange</i> ✓✓RT	2 RT Five (2)	L1 MP
3.2.4	West entrance / <i>Westelike ingang</i> ✓✓RT	2 RT West entrance (2)	L1 MP
3.2.5	B ✓RT 4 ✓RT	1 RT B 1 RT 4 (2)	L1 MP
3.2.6	South / <i>Suid</i> ✓RT West / <i>Wes</i> ✓RT	1 RT South 1 RT West (2)	L2 MP
3.2.7	Wyoming ✓✓RT	2 RT Wyoming (2)	L2 MP
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QUESTION 4 [32]			
No.	Answer / Antwoord	Explanation / Verduideliking	Level & Topic
4.1.1	North / Noord✓✓RT	2 RT North (2)	L1 P
4.1.2	Distance from East entrance to Madison: / Afstand van die Oostelike ingang tot Madison: = 27 + 21 + 17 + 16✓MA = 81 miles✓A	1 MA adding correct. values 1 A 81 miles (2)	L2 MP
4.1.3	Norris – Madison✓✓RT A = 30 – 16 A = 14 miles✓MCA	2 RT any valid two values 1 MCA 14 miles (3)	L3 MP
4.1.4	Distance / Afstand = 16 + 14 + 21 + 18 + 29 Distance / Afstand = 98 miles <u>Time / Tyd:</u> = 98 miles ÷ 45 mph✓MA = 2,1777777778 = 2 hours ✓A (0,1777777778 × 60) ✓C = 2 hours 10,666666668 = 2 hours 10 minutes✓A (0,666666668×60) = 2 hours 10 minutes 40 seconds✓A He is wrong / Hy is verkeerd✓J	1 MA 98 ÷ 45 1 A 2 hours 1 C time x 60 1 A 10 minutes 1 A 40 seconds 1 J Wrong (6)	L4 M
4.1.5	Map / Kaart: Real life / Regte Lewe 4,5 cm: 21 miles × 1609,34✓C 4,5 cm: 33796,14 × 100✓C 4,5 cm: 3379614 1: 3379614 ÷ 4,5✓MA 1: 751025,33✓A 1: 750 000✓RO	1 C ×1609,34 1 C to cm 1 MA ÷ 4,5 1 A 751025,33 1 RO 750000 (5)	L3 MP



4.1.6	Canyon to Roosevelt (long way / lang roete): = 12 + 21 + 18 = 51 miles ✓MA Canyon to Roosevelt (short way / kort roete) = 19 miles ✓RT Difference / Verskil = 51 – 19 ✓MA Difference / Verskil = 32 miles further/verder ✓A	1 MA 51 miles 1 RT 19 miles 1 MA difference 1 A 32 miles (4)	L3 M
4.2.1	Line or bar scale / Lyn skaal ✓✓RT	2 RT line/bar (2)	L1 MP
4.2.2	Moose: = 25 yards × 0,9144 ✓MA = 22,86 ✓A ≈ 23 m ✓RO Bear / Beer: = 300 feet ÷ 3,28084 ✓MA = 91,43999 ✓A ≈ 91 m ✓RO He is correct about the distance between them and the Moose. / Hy is reg oor die afstand tussen hulle en die Moose. ✓J He is wrong about the distance between them and the Bear, which is 91 m not 50 m. / Hy is verkeerd oor die afstand tussen hulle en die beer. ✓J	1 MA × 0,9144 1 A 22,86 m 1 RO 23 m 1 MA ÷ 3,28084 1 A 91,43999 1 RO 91 m 1 J Moose correct 1 J Bear wrong (8)	L4 MP
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