



Province of the
EASTERN CAPE
EDUCATION

NASIONALE SENIOR SERTIFIKAAT

GRAAD 11

NOVEMBER 2012

WISKUNDIGE GELETTERDHEID V2 MEMORANDUM

PUNTE: 100

| Simbool | Verduideliking |
|----------------|--|
| M | Metode |
| MA | Metode met akkuraatheid |
| CA | Voortgesette akkuraatheid |
| A | Akkuraatheid (Antwoord) |
| C | Omskakeling |
| S | Vereenvoudiging |
| RT/RG/RM | Lees van tabel/Lees van grafiek/Lees van kaart |
| F | Kies van korrekte formule |
| SF | Substitusie in formule |
| J/O | Mening |
| P | Penalisering vir geen eenhede, verkeerde afronding, ens. |
| R | (Afronding / Rede) |

Hierdie memorandum bestaan uit 8 bladsye.

| VRAAG 1 | | | | |
|----------------------------|-------|---|--|---|
| 1.1 | | | | |
| LU3 AS 11.3.2 | 1.1.1 | <p>1 <i>tlp</i> = 5 <i>ml</i></p> <p>1 <i>etlp</i> = 15 <i>ml</i></p> <p>15 <i>ml</i> = 3 <i>tlp</i> ✓</p> <p>Daarom is 30 <i>ml</i> = 3 <i>tlp</i> x 2 ✓ = 6 <i>tlp</i> ✓</p> | <p>OF</p> <p>$tsp = \frac{15}{5} \checkmark$</p> <p>= 3 <i>tlp</i> x 2 ✓</p> <p>= 6 <i>tlp</i> ✓</p> | <p>(3)</p> <p>1:C (<i>ml</i> na <i>tlp</i>) 1:M (x2) 1:A</p> |
| LU3 AS 11.3.2 | 1.1.2 | <p>1 blikkie = 4 mense</p> <p><u>20 mense</u> ✓</p> <p>4 mense</p> <p>= 5 ✓</p> <p>Om 20 mense te bedien sal 5 blikkies nartjies benodig word.</p> | | <p>(2)</p> <p>1:M (20/4) 1:A</p> |
| LU3 AS 11.3.2 | 1.1.3 | <p>$^{\circ}\text{F} = ^{\circ}\text{C} \times 1,8 + 32$</p> <p>= $220^{\circ} \times 1,8 + 32 \checkmark$</p> <p>= $396^{\circ} \checkmark + 32$</p> <p>= $428^{\circ} \checkmark$</p> <p>$400^{\circ} \neq 430^{\circ}$</p> <p>Nee, Gretchen het die oond op die verkeerde temperatuur $^{\circ}\text{C}$ gestel. ✓</p> | | <p>(4)</p> <p>1:SF 1:S 1:A 1:R (10^o)</p> |
| 1.2 LU3 AS 11.3.2 | | <p>1 <i>lb</i> (pond) 2 <i>oz</i> (onse) Volstruisfilet</p> <p>1 <i>lb</i> = 0,45359 <i>kg</i></p> <p>1 <i>oz</i> = 0,0625 <i>lb</i></p> <p>$0,0625 \text{ lb} \times 0,45359 = 0,028349375 \text{ kg} \checkmark \times 2 \checkmark$</p> <p>= 0,05669875 <i>kg</i></p> <p>Kilogram volstruisfilet = 1 <i>lb</i> + 2 <i>oz</i></p> <p>= 0,45359 <i>kg</i> + 0,05669875 <i>kg</i> ✓</p> <p>= 0,51028875 <i>kg</i> ✓</p> <p>= 0,5 <i>kg</i> ✓</p> | | <p>(5)</p> <p>1:C (<i>lb</i> na <i>kg</i>) 1: M (x2)</p> <p>1:M 1:A 1:R</p> |
| 1.3 LU3 AS 11.3.1 | | <p>Volume = $\pi r^2 h$</p> <p>= 3,14 x 11 cm x 11 cm x 9 cm ✓✓</p> <p>= 3419,46 $\text{cm}^3 \checkmark$</p> <p>As 1 000 $\text{cm}^3 = 1$ dan is</p> <p>$\frac{3419,46 \text{ cm}^3}{1000} = 3,4 \text{ l} \checkmark$</p> <p>Ja, die kastrol is groot genoeg vir die gekookte dis. ✓</p> | | <p>(5)</p> <p>1:A (radius) 1:SF 1:A</p> <p>1:C (cm^3 na l)</p> <p>1:J</p> |
| 1.4 | | | | |
| LU1 AS 11.1.1 | 1.4.1 | <p>500 g = $\frac{1}{2}$ <i>kg</i></p> <p>$\frac{1}{2} \times \text{R}67 = \text{R} 33,50 \checkmark$</p> | | <p>(1)</p> <p>1:A</p> |

| | | | | |
|---------------------|-------|--|-------------|--|
| LU1 AS 11.1.2 | 1.4.2 | $\text{BTW bedrag} = (\text{R}33,50 + \text{R}12,59) \checkmark \times 0,14$ $= \text{R } 46,09 \times 0,14 \checkmark$ $= \text{R } 6,45 \checkmark$ | (3) | 1:M (korrekte waardes) 1:M (x 14%) 1:A |
| LU1 AS 11.1.3 | 1.4.3 | <p>Alhoewel nartjies vrugte is, is dit in hierdie geval geprosesseer (geblik), terwyl die lemoene 'n vars produk is. $\checkmark\checkmark$</p> <p style="text-align: center;">OF</p> <p>Geen BTW is betaalbaar op vars produkte soos lemoene nie, maar wanneer dit geblik word, is belasbaar. $\checkmark\checkmark$</p> <p style="text-align: center;">(Enige ander relevante verduideliking.)</p> | (2) | 2:A |
| LU1 AS 11.1.3 | 1.4.4 | <p>Omdat 1 en 2 sent muntstukke nie meer in sirkulasie is nie, word die finale bedrag afgerond tot die naaste 5 sent. $\checkmark\checkmark$</p> <p style="text-align: center;">(Enige ander relevante verduideliking.)</p> | (2) | 2:A |
| LU1 AS 11.1.3 | 1.4.5 | <p>Geen kleingeld is aan Gretchen verskuldig nie, omdat sy slegs die verskuldigde bedrag betaal. $\checkmark\checkmark$</p> | (2) | 2:A |
| LU1 AS 11.1.1 | 1.4.6 | Middag \checkmark 16:42 \checkmark | (2) | 2:A |
| | | | [31] | |

| VRAAG 2 | | | | | | | | | | | | | | | | | |
|---------------------|----------------|--|---|----------------|---|---------|---|---------|---|---------|---|---------|---|---------|---|--------|---|
| 2.1 | | | | | | | | | | | | | | | | | |
| LU1 AS 11.1.1 | 2.1.1 | $\begin{aligned} \text{Waarde van deposito} &= R250\,000 \times 0,16 \checkmark \\ &= R40\,000 \checkmark \end{aligned}$ | (2) 1:M 1:A | | | | | | | | | | | | | | |
| LU1 AS 11.1.1 | 2.1.2 | $\begin{aligned} P &= R250\,000 - R40\,000 \\ &= R210\,000 \checkmark \\ n &= 72 / 12 \\ &= 6 \text{ jare } \checkmark \\ i &= 9,5 / 100 \\ &= 0,095 \\ A &= P(1 + ni) \\ &= 210\,000 (1 + 6 \times 0,095) \checkmark \\ &= 210\,000 (1 + 0,57) \\ &= 210\,000 (1,57) \checkmark \\ &= R329\,700 \checkmark \end{aligned}$ | (5) 1:A (P- waarde) 1:A (n- waarde) 1:SF 1:S 1:A | | | | | | | | | | | | | | |
| LU1 AS 11.1.1 | 2.1.3 | $\begin{aligned} I &= A - P \\ &= R329\,700 - R210\,000 \checkmark \\ &= R119\,700 \checkmark \end{aligned}$ | (2) 1:M 1:CA | | | | | | | | | | | | | | |
| 2.2 | | | | | | | | | | | | | | | | | |
| LU2 AS 11.2.1 | 2.2.1 | $\begin{aligned} A &= P(1 - i)^n \\ &= 250\,000 (1 - 0,2)^2 \checkmark \\ &= 250\,000 (0,8)^2 \\ &= 250\,000 (0,64) \checkmark \\ &= R160\,000 \checkmark \end{aligned}$ <p style="text-align: center;">OF</p> $\begin{aligned} A &= P(1 - i)^n \\ &= 200\,000 (1 - 0,2)^1 \checkmark \\ &= 200\,000 (0,8)^1 \checkmark \\ &= R160\,000 \checkmark \end{aligned}$ | (3) 1:SF 1:S 1:A | | | | | | | | | | | | | | |
| LU1 AS 11.2.2 | 2.2.2 | <p style="text-align: center;">Waarde van motor oor jare</p> <table border="1"> <caption>Data points for the motor value graph</caption> <thead> <tr> <th>Jare</th> <th>Waarde in Rand</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>250 000</td> </tr> <tr> <td>1</td> <td>200 000</td> </tr> <tr> <td>2</td> <td>160 000</td> </tr> <tr> <td>3</td> <td>128 000</td> </tr> <tr> <td>4</td> <td>102 400</td> </tr> <tr> <td>5</td> <td>81 920</td> </tr> </tbody> </table> | Jare | Waarde in Rand | 0 | 250 000 | 1 | 200 000 | 2 | 160 000 | 3 | 128 000 | 4 | 102 400 | 5 | 81 920 | 1 punt vir elk (0,250 000) (1,200 000) (2,160 000) (3,128 000) (4,102 400) |
| Jare | Waarde in Rand | | | | | | | | | | | | | | | | |
| 0 | 250 000 | | | | | | | | | | | | | | | | |
| 1 | 200 000 | | | | | | | | | | | | | | | | |
| 2 | 160 000 | | | | | | | | | | | | | | | | |
| 3 | 128 000 | | | | | | | | | | | | | | | | |
| 4 | 102 400 | | | | | | | | | | | | | | | | |
| 5 | 81 920 | | | | | | | | | | | | | | | | |
| | | | (5) | | | | | | | | | | | | | | |

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|----------------------------|-------|--|-------------|---------------------------------|
| LU1 AS 11.2.3 | 2.2.3 | Indirekte of Omgekeerde eweredigheid ✓ Soos die jare toeneem, so neem die waardes van die motor af. ✓ | (2) | 1:A 1:R |
| 2.3 LU4 AS 11.4.5 | | P (silwer) = $\frac{3}{14}$ ✓✓ OF 0,214 ✓✓ OF 21,4% ✓✓ | (2) | 1:A (teller) 1:A (noemer) |
| | | | [21] | |

| VRAAG 3 | | | | |
|---------------------|-------|---|------|------------------------------------|
| 3.1 | | | | |
| LU4 AS 11.4.5 | 3.1.1 | 5 ✓ Spanne kan nie teen hulself speel nie. ✓ | (2) | 1:A 1:R |
| LU4 AS 11.4.5 | 3.1.2 | 10 ✓✓ | (2) | 2:A |
| LU4 AS 11.4.5 | 3.1.3 | 4 ✓✓ | (2) | 2:A |
| LU4 AS 11.4.5 | 3.1.4 | 10 ✓✓ | (2) | 2:A |
| LU4 AS 11.4.5 | 3.1.5 | $\frac{1}{4}$ ✓✓ OF 0,25 ✓✓ OF 25% ✓✓ | (2) | 1:A (teller) 1:A (noemer) |
| LU4 AS 11.4.5 | 3.1.6 | $\frac{1}{16}$ ✓✓ OF 0,063 ✓✓ OF 6,3% ✓✓ | (2) | 1:A (teller) 1:A (noemer) |
| 3.2 | | | | |
| LU2 AS 11.2.1 | 3.2.1 | (a) $s = 5t + 2c + 3p$ ✓✓✓ | (3) | 3:F |
| LU2 AS 11.2.1 | | (b) $s = 5t + 2c + 3p$ $= (5 \times 6) + (2 \times 5) + (3 \times 3)$ ✓ $= 30 + 10 + 9$ $= 49$ ✓ | (2) | 1:SF (korrekte waardes) 1:CA |
| LU2 AS 11.2.1 | 3.2.2 | Vir 1 strafskop ✓ | (1) | 1:A |
| 3.3 | | | | |
| LU1 AS 11.1.1 | 3.3.1 | 1 ZAR (Suid-Afrikaanse Rand) = 0,15761 NZD Kategorie B = 123 NZD ✓ $ZAR = \frac{123 \text{ NZD}}{0,15761 \text{ NZD}}$ ✓ $= 780,4073346$ $= 780,41$ ✓ | (3) | 1:RT (123) 1:M 1:A |
| LU1 AS 11.1.1 | 3.3.2 | 1 NZD = R6,3450 ZAR 200 NZD $ZAR = 200 \times 6,3450$ ✓ $= R1\ 269$ ✓ | (2) | 1:M 1A |
| | | | [23] | |

| | | | | |
|---------------------|-------|--|------------|--|
| LU2 AS 11.2.1 | 4.1.5 | Gelykbreekpunt ✓ Vir 30 CD's is die inkomste en uitgawes presies dieselfde (R180). ✓ | (2) | 1:A 1:R |
| LU2 AS 11.2.3 | 4.1.6 | Voor die gelykbreekpunt is die inkomste minder as die uitgawes. ✓✓ OF Voor die gelykbreekpunt is die uitgawes meer as die inkomste. ✓✓ | (2) | 2:A |
| LU2 AS 11.2.3 | 4.1.7 | Daar is 'n aanvangskoste van R30 (vervoerkoste). ✓✓ | (2) | 2:A |
| 4.2 | | | | |
| LU4 AS 11.4.3 | 4.2.1 | 25% van die verkope was 15 en minder CD's verkoop vir die maand. ✓✓ | (2) | 2:A |
| LU4 AS 11.4.3 | 4.2.2 | 75% van die verkope was 37 en meer CD's verkoop vir die maand. ✓✓ | (2) | 2:A |
| LU4 AS 11.4.3 | 4.2.3 | Ja ✓ Meeste van die CD's wat hy verkoop het, is meer as 15 (75%). ✓ | (2) | 1:A 1:R |
| 4.3 | | Deursnit van buitesirkel = 118 mm = 11,8 cm ✓ Radius van buitesirkel = 5,9 cm ✓ Radius van binnesirkel = 0,75 cm Opp. van CD = Opp. van buitesirkel – Opp. van binnesirkel $= \pi r^2 - \pi r^2$ $= 3,14 \times 5,9^2 - 3,14 \times 0,75^2$ ✓ $= 109,30 \text{ cm}^2 - 1,77 \text{ cm}^2$ ✓ $= 107,53 \text{ cm}^2$ ✓ OF Opp van CD = Opp. van buitesirkel – Opp. van binnesirkel $= \pi r^2 - \pi r^2$ $= 3,14 \times 5,9 \text{ cm} \times 5,9 \text{ cm} - 3,14 \times 0,75 \text{ cm} \times 0,75 \text{ cm}$ ✓ $= 109,3034 \text{ cm}^2 - 1,76625 \text{ cm}^2$ ✓ $= 107,53715 \text{ cm}^2$ $= 107,54 \text{ cm}^2$ ✓ | (5) | 1:C (mm na cm) 1:A (vind r) 1:SF 1:S 1:CA |
| | | | [25] | |
| | | | | |
| | | TOTAAL: | 100 | |