**MLIT**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**MEMORANDUM**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

# ISEBE LEMFUNDO LEMPUMA KOLONI

EASTERN CAPE EDUCATION DEPARTMENT

OOS-KAAP ONDERWYSDEPARTEMENT

IIMVIWO ZEBANGA LOKUGQIBELA

NATIONAL SENIOR CERTIFICATE EXAMINATIONS

NASIONALE SENIOR SERTIFIKAAT-EKSAMEN

### SEPTEMBER 2009

|  |
| --- |
| **WISKUNDIGE GELETTERDHEID – EERSTE VRAESTEL** |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Hierdie memorandum bestaan uit 9 bladsye.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  | | --- | --- | | **SIMBOOL** | **VERDUIDELIKING** | | **M** | Metode | | **MA** | Metode met Akkuraatheid | | **KA** | Konstante Akkuraatheid | | **A** | Akkuraatheid | | **H** | Herlei | | **V** | Vereenvoudiging | | **LT / LG** | Lees vanaf tabel / grafiek | | **F** | Kies die korrekte formule | | **SF** | Substitusie in 'n formule | | **O** | Opinie | | **P** | Penalisering: bv. vir: geen eenhede, inkorrekte afronding, ens. | | **A** | Afronding | | | | |  |
|  |  | | | |  |
|  |  | |  | |  |
|  |  | |  | |  |
|  |  | |  | |  |
|  |  | |  | |  |
|  |  | |  | |  |
|  |  | |  | |  |
|  |  | |  | |  |
|  |  | | | |  |
|  |  | |  | |  |
|  |  | |  | |  |
|  |  | |  | |  |
|  |  | |  | |  |
|  |  | |  | |  |
|  |  | |  | |  |
|  |  | |  | |  |
|  |  | |  | |  |
|  |  | |  | |  |
|  |  | |  | |  |
| **VRAAG 1** | | | | |  |
|  | | | | |  |
|  |  |  | | |  |
| 1.1 | 1.1.1 | 28,2 + 9,2 – 4 ✓  = 33,4 ✓ | | *Vir*: 9,2  A : 1 | (2) |
|  |  |  | |  |  |
|  | 1.1.2 | 2,1 x 5,21 ✓ OF (2,1 x 5,2) + (2,1 x 0,01)  = 10,94 ✓ = 10,92 + 0,021  = 10,94 | | *Vir*: 5,21  A : 1 | (2) |
|  |  |  | |  |  |
|  | 1.1.3 | ✓  = 156,8 m ✓ | | M : 1  A : 1 | (2) |
|  |  |  | |  |  |
|  | 1.1.4 | 7 + 9 ✓  = 16 ✓ | | *Vir: vierkantswortel*  A : 1 | (2) |
|  |  |  | |  |  |
| 1.2 | 1.2.1 | ✓  = ✓ | | M : 1  A : 1 | (2) |
|  |  |  | |  |  |
|  | 1.2.2 | ✓  = 14,29 ✓ | | M : 1  A : 1 | (2) |
|  |  |  | |  |  |
|  | 1.2.3 | 490 x 1,32 ✓ ✓ OF ✓x 490 ✓  = R646,80 ✓ = R646,80✓ | | *Vir*: 1,32  M : 1  A : 1 | (3) |
|  |  |  | |  |  |
|  | 1.2.4 | 1 **:** 9 ✓ | |  | (1) |
|  |  |  | |  |  |
| 1.3 | 1.3.1 | R24 323,04 12  = R2 026,92 | |  | (2) |
|  |  |  | |  |  |
|  | 1.3.2 | R2 026,92 21 ✓  = R96,52 ✓ | | M : 1  A : 1 | (2) |
|  |  |  | |  |  |
| 1.4 | 5 200 x R12,96 ✓  = R67 392,00 ✓ | | | M : 1  A : 1 | (2) |
|  |  |  | |  |  |
| 1.5 | 1.5.1 | 1,2 m x 1 000 ✓  = 1 200 mm ✓ | | M : 1  A : 1 | (2) |
|  |  |  | |  |  |
|  | 1.5.2 | R102,60 1,2 ✓  = R85,50 ✓ | | M : 1  A : 1 | (2) |
|  |  |  | |  | **[26]** |
|  |  |  | |  |  |
|  | | | |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **VRAAG 2** | | | | | | | | | | | | |  |  | |
|  | | | |  | |  | | | | | | |  |  | |
| 2.1 | | | | 2.1.1 | | 15 km ✓ | | | | | | | A : 1 | (1) | |
|  | | | |  | |  | | | | | | |  |  | |
|  | | | | 2.1.2 | | 20 – 6 ✓  = 14 km ✓ | | | | | | | M : 1  A : 1 | (2) | |
|  | | | |  | |  | | | | | | |  |  | |
|  | | | | 2.1.3 | | Hulle gaan by mekaar verby teen 06:36,8 ✓  0,8 min = 0,8 x 60 sek = 48 sekondes ✓  Hulle gaan mekaar verby teen:  06:36 en 48 sekondes ✓  **(Tussen 06:36 en 06:37 gee 1 punt)** | | | | | | | LG : 1  KA : 1  A : 1 | (3) | |
|  | | | |  | |  | | | | | | |  |  | |
|  | | | | 2.1.4 | | Om passasiers op te tel en af te laai ✓ | | | | | | | *Opinie* | (1) | |
|  | | | |  | |  | | | | | | |  |  | |
|  | | | | 2.1.5 | | 25 km ✓ | | | | | | | LG : 1 | (1) | |
|  | | | |  | |  | | | | | | |  |  | |
|  | | | | 2.1.6 | | 12 min – 1 min ✓  = 11 minute ✓ | | | | | | | M : 1  A : 1 | (2) | |
|  | | | |  | |  | | | | | | |  |  | |
|  | | | | 2.1.7 | | Gemiddelde spoed =  = ✓  = 109 km/h (km.h-1) ✓ | | | | | | | SF : 1  *Herlei*  A : 1 | (3) | |
|  | | | |  | |  | | | | | | |  |  | |
| 2.2 | | | | 2.2.1 | | ✓ x 219 ✓  = 73 goue medaljes ✓A | | | | | | | LG : 1  M : 1  A : 1 | (3) | |
|  | | | |  | |  | | | | | | |  |  | |
|  | | | | 2.2.2 | | ✓ x 100 ✓  = 3,33% goue medaljes ✓ | | | | | | | LG : 1  M : 1  A : 1 | (3) | |
|  | | | |  | |  | | | | | | |  |  | |
|  | | | | 2.2.3 | | ✓ x 360° ✓  = 100,8° ✓ | | | | | | | LG : 1  M : 1  A : 1 | (3) | |
|  | | | |  | |  | | | | | | | |  | |
| 2.3 | | | | 2.3.1 | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | **LAND** | **GOUD** | **SILWER** | **BRONS** | **TOTAAL** | | Australië | 82 | 62 | 62 | ***206*** | | Engeland | 54 | 52 | ***59*** | 165 | | Indië | ***32*** | 21 | 19 | 72 | | Kanada | 31 | 41 | 42 | ***114*** | | Nieu-Seeland | 11 | 13 | 21 | 45 | | Suid-Afrika | 9 | ***20*** | 17 | 46 | | | | | | | | | (5) | |
|  | | | |  | |  | | | | | | | | **[27]** | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
| **VRAAG 3** | | | | | | | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
| 3.3 | | | | 3.1.1 | | (i) Botterskorsie drasak  (ii) Melk volroom UHT 1ℓ  (iii) Bruin uie Enige 3  (iv) Piesangs | | | | | | A: 1  A: 1  A: 1 | | (3) | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | | 3.1.2 | | 19,99 + 7,99 + 2,35 + 2,21 + 5,49 + 21,69 + 14,49  =R74,21 | | | | | | M : 1  A : 1 | | (2) | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | | 3.1.3 | | 19,99 + 7,99 + 2,35 + 2,21  =R32,54 | | | | | | M : 1  A : 1 | | (2) | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | | 3.1.4 | | Bankkaart | | | | | | 1 : A | | (1) | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | | 3.1.5 | | Oggend | | | | | | 1 : A | | (1) | |
|  | | | |  | |  | | | | | |  | |  | |
| 3.2 | | | | 3.2.1 | | =R846 937 – (R668 220 + R54 000 x R400)  =R846 937 – R 722 620  =R124 317,00 | | | | | | M : 1  A : 1 | | (2) | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | | 3.2.2 | | Koekverkoping, Denimbroek-dag, Kultuurdag, ens. | | | | | | *Enige 2 aktiwiteite*  (2 *punte*) | | (2) | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | | 3.2.3 | | R30 000 + R55 000 + R42 000 + R10 000 x 2 +  R5 000 + R80 186,40 + R300 699 + R668 22 x 3 + R334 11+ R53 457,60  = R820 220,00 | | | | | | M : 1  A : 1 | | (2) | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | | 3.2.4 | | = 6,31% | | | | | | LT : 1  M : 1  A : 1 | | (3) | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | | 3.2.5 | | R668 220,00 | | | | | | LT : 1 | | (1) | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | | 3.2.6 | | A = P(1+i)n  = 75 000 (1 + 0,11)2  = 75 000(1,11)2  = R92 407,50 | | | | | | M : 1  SF : 1  A : 1 | | (3) | |
|  | | | |  | |  | | | | | |  | | **[22]** | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | |  | |  | | | | | |  | |  | |
| **QUESTION 4** | | | | | | | | | | | |  | |  | |
|  | | | |  | |  | | | | | |  | |  | |
| 4.1 | | | | Area = r2  = 3,14 x 1,8 x 1,8 🗸Substitusie  = 10,17 m2 🗸 🗸 | | | | | | | | M : 1  A : 1  *Vir eenheid* | | (3) | |
|  | | | |  | |  | | | | | |  | |  | |
| 4.2 | | | | 4 m + 1,8 m 🗸 Metode  = 5,8 m 🗸 | | | | | | | | M : 1  A : 1 | | (2) | |
|  | | | |  | | | | | | | |  | |  | |
| 4.3 | | | | 5 x 7 x R85,00 🗸 Substitusie  = R2 975,00 🗸 | | | | | | | | M : 1  A : 1 | | (2) | |
|  | | | |  | | | | | | | |  | |  | |
| 4.4 | | | | 4.4.1 | | 59,5 m2 ÷ 32 m2 🗸 Deling  = 1,86 beteken 2 werkers 🗸 | | | | | |  | | (2) | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | | 4.4.2 | | 59,5 m2 ÷ 9 m2 🗸 Deling  = 6,61 lit 🗸 Antwoord  = 7 lit 🗸 | | | | | | M : 1  A : 1  *Benaderde* | | (3) | |
|  | | | |  | |  | | | | | |  | |  | |
|  | | | | 4.4.3 | | R507,50 ÷ 7 🗸 Deling  = R72,50 🗸 | | | | | | M : 1  A : 1 | | (2) | |
|  | | | |  | |  | | | | | |  | |  | |
| 4.5 | | | | 4.5.1 | | Volume = 100 kiloliter Gelykstaande  100 kiloliter = 100 x 1 000🗸 x 1 000🗸 cm3 Conversion into Litres  = 100 000 000 cm3 🗸 | | | | | | x 1 000  x 1 000  A : 1 | | (3) | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | | 4.5.2 | | Hoogte = 🗸 🗸 Maak h onderwerp  h = 199,04 cm 🗸 Antwoord  = 2 m 🗸 | | | | | | SF: 1  SF: 1  A : 1  *Benaderde* | | (4) | |
|  | | | |  | |  | | | | | | | | **[25]** | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
|  | | | |  | |  | | | | | | | |  | |
| **VRAAG 5** | | | | | | | | | | | | | | |  |
|  | | |  | | | | | |  | | | | | |  |
| 5.1 | | | 5.1.1  Frekwensie vir aantal daaglikse besoekers na die akwarium   |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 0 – 9  10 – 19  20 – 29  30 – 39  40 – 49  60 – 69  80 – 89  50 – 59  70 – 79  90 – 99  0  2  4  6  8  10  12  14  16  18 |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  | | Aantal dae |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |   Aantal besoekers | | | | | | | | | | | |  |
|  | | |  | | | | | | | | | | | |  |
|  | | | ENIGE 3 kolomme korrek geteken ✓✓✓  Kolomme raak aan mekaar ✓  Alle kolomme is dieselfde breedte ✓ | | | | | | | | | | | | (5) |
|  | | |  | | | |  | | | | | | | |  |
|  | | | 5.1.2 | | | | Op dieselfde grafiek as vir VRAAG 5.1.1.  Enige twee punte in die middel van ŉ kolom ✓✓  Verbind die punte met ŉ lyn ✓ | | |  | | | | | (3) |
|  | | |  | | | |  | | |  | | | | |  |
| 5.2 | | | 5.2.1 | | | | R400,00 ✓ | | | A : 1 | | | | | (1) |
|  | | |  | | | |  | | |  | | | | |  |
|  | | | 5.2.2 | | | | Arbeidskoste = (3 ure x R250) + R400 ✓  = R750 + R400 ✓  = R1 150 ✓ | | | M : 1  S : 1  A : 1 | | | | | (3) |
|  | | |  | | | |  | | |  | | | | |  |
|  | | | 5.2.3 | | | | Tyd = (R2 900 – R400) ✓M  = R2 500 R250 ✓M  = 10 ure ✓CA | | | M : 1  M : 1  A : 1 | | | | | (3) |
|  | | |  | | | |  | | |  | | | | |  |
|  | | | 5.2.4 | | | | 340 minute 60 = 5,666667 ure ✓  Buddy’s het 5 ure✓ en 40 minute geneem✓ | | | *Herleiding*  A : 1  (5 *Ure*)  A : 1  (40 *Minute*) | | | | | (3) |
|  | | |  | | | |  | | | | | | | |  |
|  | 5.2.5 | | | | | |  | | | | | | | |  |
|  |  | | | | | |  | | | | | | | |  |
|  |  | | | | | | Enige twee punte op die grafiek ✓✓  Verbind punte met ŉ lyn ✓  Sny Y-as by 400 ✓ | | | | | | | | (4) |
|  |  | | | | | |  | | | | | | | | **[22]** |
|  | | | | | | | | | | | | | | | |
|  |  | | | | | |  | | | | | | | |  |
| **VRAAG 6** | | | | | | | | | | | | | | |  |
|  | |  | | | | | |  | | | | | | |  |
| 6.1 | | D2 | | | | | | | | | LT : 1 | | | | (1) |
|  | |  | | | | | |  | | |  | | | |  |
| 6.2 | | N2 nasionale pad | | | | | | | | | LT : 1 | | | | (1) |
|  | |  | | | | | |  | | |  | | | |  |
| 6.3 | | 7 wynplase | | | | | | | | | LT : 1 | | | | (1) |
|  | |  | | | | | | | | |  | | | |  |
| 6.4 | | Exit (Afrit) 47 | | | | | | | | | LT : 1 | | | | (1) |
|  | |  | | | | | | | | |  | | | |  |
| 6.5 | | Oos | | | | | | | | | LT : 1 | | | | (1) |
|  | |  | | | | | | | | |  | | | |  |
| 6.6 | | 3 | | | | | | | | | LT : 1 | | | | (1) |
|  | |  | | | | | | | | |  | | | |  |
| 6.7 | | 1 mm op kaart stel 50 000 mm in werklikheid voor  25 mm sal dus:  25 x 50 000 ✓ M = 1 250 000 mm in werklikheid ✓  Daar is 1 000 000 mm in 1 km  = 1 250 000 mm 1 000 000 ✓  = 1,25 km ✓ | | | | | | | | | M : 1  A : 1  *Herlei:* mm *na* km  KA : 1 | | | | (4) |
|  | |  | | | | | |  | | |  | | | |  |
| 6.8 | | R2,80 x 45 km ✓M = R126,00 per toer ✓A | | | | | | | | | M : 1  A : 1 | | | | (2) |
|  | |  | | | | | |  | | |  | | | |  |
| 6.9 | | 16 – 2 = 14 ✓M betalende passasier  14 x R126,00 ✓M= R1 764,00 per toer ✓A | | | | | | | | | M : 1  A : 1 | | | | (3) |
|  | |  | | | | | |  | | |  | | | | **[15]** |
|  | |  | | | | | |  | | |  | | | |  |
|  | |  | | | | | |  | | |  | | | |  |
| **VRAAG 7** | | | | | | | | | | | | | |  | |
|  | |  | | |  | | | | | | | | |  | |
| 7.7 | | 7.1.1 | | | Gemiddelde = 🗸🗸Vir 1 026 en deling deur 24  = 42,75 🗸 | | | | | | *Vir*: 1 026  M : 1  A : 1 | | | (3) | |
|  | |  | | |  | | | | | |  | | |  | |
|  | | 7.1.2 | | | 3; 3; 3; 12; 26; 29; 33; 36; 36; 38; 42; 46; 48; 50; 51; 51; 52; 57; 59; 64; 68; 69; 73; 77 🗸  Mediaan = 🗸 Metode  = 47 🗸 | | | | | | *Vir Rangskikking*  M : 1  A : 1 | | | (3) | |
|  | |  | | |  | | | | | |  | | |  | |
|  | | 7.1.3 | | | Modus = 3 🗸 | | | | | | A : 1 | | | (1) | |
|  | |  | | |  | | | | | |  | | |  | |
|  | | 7.1.4 | | | Modus 🗸 | | | | | | A : 1 | | | (1) | |
|  | |  | | |  | | | | | |  | | |  | |
| 7.2 | | 7.2.1 | | | R80 000 – R22 000 🗸 Metode  = R58 000 🗸 | | | | | | M : 1  A : 1 | | | (2) | |
|  | |  | | |  | | | | | |  | | |  | |
|  | | 7.2.2 | | | 4 Huise 🗸 | | | | | | A : 1 | | | (1) | |
|  | |  | | |  | | | | | |  | | |  | |
|  | | 7.2.3 | | | Berea 🗸 Antwoord (1)  Duur OF enige verwante woorde of stellings 🗸 | | | | | | A : 1  A : 1 | | | (2) | |
|  | |  | | |  | | | | | |  | | |  | |
|  | | 7.2.4 | | | 🗸 Identifikasie en Deling  = 54 huise | | | | | | M : 1  A : 1 | | | (2) | |
|  | |  | | |  | | | | | |  | | |  | |
|  | | 7.2.5 | | | 🗸 | | | | | | M : 1  A : 1 | | | (2) | |
|  | |  | | |  | | | | | |  | | | **[17]** | |
|  | |  | | |  | | | | | |  | | |  | |
|  | |  | | |  | | | | | | **TOTAAL:** | | | **150** | |