higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

# NASIENRIGLYN

## NASIONALE SERTIFIKAAT (BEROEPSGERIG)

## WISKUNDIGE GELETTERDHEID

(Eerste vraestel)

**NKR VLAK 2**

**23 November 2020**

| SIMBOOL | VERDUIDELIKING |
|---|---|
| M | Metode |
| MA | Metode met akkuraatheid |
| CA | Konsekwente akkuraatheid |
| A | Akkuraatheid |
| C | Omsetting |
| S | Vereenvoudiging |
| RT/RG/RD/RM | Lees van 'n tabel/grafiek/skets/dokument/kaart |
| F | Keuse van die regte formule |
| SF | Vervanging in formule |
| MF | Manipulasie van formule |
| R/J | Redenasie/Regverdiging/Motivering |
| P | Penalisering, bv. vir geen eenheid nie, verkeerde afronding |
| R | Afronding |
| E | Verduideliking |

**Hierdie nasienriglyn bestaan uit 8 bladsye.**

Kopiereg voorbehou

## VRAAG 1

**(Moenie punte aftrek as die 'R'-teken ontbreek nie. Ken punt toe as die antwoord korrek is.)**

| VRAAG | | OPLOSSING | VERDUIDELIKING | |
|---|---|---|---|---|
| 1.1 | 1.1.1 | ½ (9 – 1) + $\sqrt{49}$<br>= ½(8) + 7✓<br>= 4 + 7<br>= 11✓<br>(antwoord slegs 1 punt) | 1S<br><br><br>1A | (2) |
| | 1.1.2 | $4^2 \times 2 + 8$<br>= 16 × 2 + 8<br>= 32 ✓+ 8<br>= 40✓<br>(antwoord slegs 1 punt) | <br><br>1S<br><br>1A | (2) |
| 1.2 | | 5 500 g ÷ 1 000✓<br>= 5,5 ✓kg<br>(slegs antwoord volpunte) | 1M<br>1A | (2) |
| 1.3 | | $\frac{18}{35} \times 100$ ✓<br>= 51,428✓%<br>Afgerond tot 51✓% | 1M<br>1A<br>1R | (3) |
| 1.4 | 1.4.1 | 14:30✓ | 1A | (1) |
| | 1.4.2 | 14:30✓<br>- 08:00✓<br>06:30<br><br>Die duur is 6 uur en 30 minute.✓<br><br>OF<br><br>08:00 – 14:00 = 6 uur✓<br>14:00 – 14:30 = 30 minute✓<br>Die duur is 6 uur en 30 minute.✓<br>(Of enige ander geskikte metode) | 2M<br><br><br>1A | (3) |
| 1.5 | 1.5.1 | rooi:groen<br>1:4<br>5:groen<br>groen = 4 × 5✓<br>= 20✓ liter<br>(slegs antwoord volpunte) | <br><br><br><br>1M<br>1A | (2) |
| | 1.5.2 | 5 ℓ red + 20 ℓ✓ groen<br>= 25 liter geel ✓<br>(slegs antwoord volpunte) | 1M<br>1A | (2) |

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|---|---|---|---|---|
| | 1.5.3 | R255✓ ÷ 5 ✓<br>= R51✓ per ℓ | 2M<br>1A | (3) |

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

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|---|---|---|---|---|
| 1.7 | 25 ; 0 ; -3 ; -50<br>✓ ✓<br>1 punt per twee korrekte volgordes | | 2A | (2) |

| | | | | |
|---|---|---|---|---|
| 1.8 | 1.8.1 | $\frac{1}{10} \times 100$✓<br>= 10 rooi albasters✓<br>(slegs antwoord volpunte) | 1M<br>1A | (2) |

| | | | | |
|---|---|---|---|---|
| | 1.8.2 | ½ of 100 = 50✓ blou albasters<br>Dus 100 – 10 – 50✓<br>= 40 ✓geel albasters<br><br>Of<br><br>$\frac{4}{10}$ ✓ × 100✓<br>= 40✓ albasters | 2M<br><br>1A | (3) |
| | | | | **[30]** |

**VRAAG 2**

**(Moenie punte toeken vir eenhede nie, tensy anders vermeld)**

| | | | | |
|---|---|---|---|---|
| 2.1 | 2.1.1 | Reghoekige driehoek✓<br>Aanvaar: driehoek | 1A | (1) |

| | | | | |
|---|---|---|---|---|
| | 2.1.2 | Reghoekige prisma✓ | 1A | (1) |

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

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

| | | | | |
|---|---|---|---|---|
| | 2.1.5 | $V = l \times b \times d$<br>$= 5 \times 3$✓ $\times 1,5$✓<br>$= 22,5$✓ $m^3$✓ | 1SF<br>1A<br>1 U | (4) |
| | 2.1.6 | $C = \pi d$<br>$C = 3,14 \times 3$✓<br>$= 9,42$✓ m | 1SF<br>1A | (2) |
| 2.2 | 2.2.1 | C2✓✓ | 2RM | (2) |
| | 2.2.2 | Baton Rouge✓<br>Aanvaar: Baton | 1RM | (1) |
| | 2.2.3 | Suidwes✓ | 2RM | (2) |
| | 2.2.4 | 1 cm = 50 km✓ | 1RM | (1) |
| | 2.2.5 | 1 cm = 50 km<br>3,2 cm = ? km<br>Afstand = 3,2✓ × 50✓<br>= 160✓ km | 2M<br>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 | Blou✓ | 1RD | (1) |
| | 2.3.4 | Om voertuie wat agter die sleepwa ry te kan waarsku as die bestuurder links of regs wil draai.✓✓<br>(Enige ander redelike antwoord.) (TWEE punte vir EEN rede) | 2R/J | (2) |
| | | | | **[30]** |

## VRAAG 3

**(Moenie punte aftrek as die 'R'-teken ontbreek nie. Ken punt toe as die antwoord korrek is.)**

| | | | | |
|---|---|---|---|---|
| 3.1 | 3.1.1 | R100 × 5✓<br>= R500✓<br>**(Slegs antwoord volpunte)** | 1M<br>1A | (2) |
| | 3.1.2 | R150 × 5✓<br>= R750✓<br>**(Slegs antwoord volpunte)** | 1M<br>1A | (2) |
| | 3.1.3 | **BUDGET FOR LERATO'S SCHOOL TOUR**<br>**INCOME** / **AMOUNT** / **EXPENSES** / **AMOUNT**<br>Money from parents / R 2 000 ✓ / Transport / R 650 ✓<br>Accommodation / R 1 350 ✓<br>Food / R 500 ✓<br>Spending Money / R 750 ✓<br>**TOTAL INCOME:** / R2 000 ✓ / **TOTAL EXPENSES:** / R3 250 ✓<br>**SURPLUS/DEFICIT:** R1 250 deficit ✓ or -R1 250 | 1A inkomste<br>1A Verv.<br>1A Akk.<br>1CA Kos<br>1CA Sakg.<br>1CA tot ink.<br>1CA tot uitg.<br>1CA Tekort | (8) |
| | 3.1.4 | Kry 'n deeltydse werk.<br>Vra familie en vriende vir donasies.✓<br>(Enige ander logiese/redelike voorstel) | 1R/J | (1) |
| 3.2 | 3.2.1 | Betaalstrokie/Kwitansie/Faktuur✓ | 1RT | (1) |
| | 3.2.2 | Ben Stevens✓ | 1RT | (1) |
| | 3.2.3 | $A = \frac{100✓}{115✓} \times R127,40 = R110,78✓$ | 2M<br>1A | (3) |
| | 3.2.4 | B = R127,40 – R110,78✓<br>= R16,62✓<br>OF<br>$B = \frac{15}{115}✓ \times R127,40 = R16,62✓$ | 1M<br>1CA<br>1M<br>1A | (2) |
| | 3.2.5 | C = R200 – R127,40✓<br>= R72,60✓<br>**(Slegs antwoord volpunte)** | 1M<br>1A | (2) |

| | | | | |
|---|---|---|---|---|
| 3.3 | 3.3.1 | **SAVINGS DEPOSIT**<br>Date **25 June 2019** ✓<br>Name **Danny West** ✓<br>Account Number **1652 1870** ✓<br>CASH **1 400** ✓ **00**<br>CHECKS<br>Subtotal<br>Less Cash<br>TOTAL **1 400** ✓ **00**<br>1 mark each as indicated | 5A | (5) |
| | 3.3.2 | R1 400 ÷ R100 = 14✓<br>Dus R8,07 + R1,82(14) ✓<br>= R8,07 + R25,48<br>= R33,55✓ | 1A<br>1SF<br><br>1CA | (3) |
| | | | | **[30]** |

**VRAAG 4**

**(Moenie punte aftrek as die 'R'-teken ontbreek nie. Ken punt toe as die antwoord korrek is.)**

| | | | | | |
|---|---|---|---|---|---|
| 4.1 | 4.1.1 | A: | R50 × 1✓<br>= R50✓ | 1S<br>1A | |
| | | B: | R50 × 2✓<br>= R100✓ | 1SF<br>1A | |
| | | C: | R150 ÷ R50✓<br>= 3 kaartjies✓ | 1SF<br>1A | |
| | | D: | R400 ÷ R50✓<br>= 8 kaartjies✓ | 1SF<br>1A | |
| | | (Slegs antwoorde volpunte) | | (4 × 2) | (8) |
| | 4.1.2 | R200✓✓ | | 2MA | (2) |
| | 4.1.3 | R50✓ ÷10✓<br>= R5✓ per lap | | 2MA<br>1A | (3) |
| | 4.1.4 | 4 kaartjies vir 1 wedren (Rambo en sy 3 vriende) = R200✓<br>R200 × 5 wedrenne✓<br>= R1 000✓ | | 1CA (4.1.2)<br>1M<br>1A | (3) |
| | 4.1.5 | Afhanklik: Koste in rand✓<br>Onafhanklik: Aantal kaartjies✓ | | 2A | (2) |
| | 4.1.6 | Direk eweredig✓<br>As die aantal kaartjies toeneem✓ neem die koste in rand in dieselfde verhouding toe.✓ | | 1A<br>2R/J | (3 ) |

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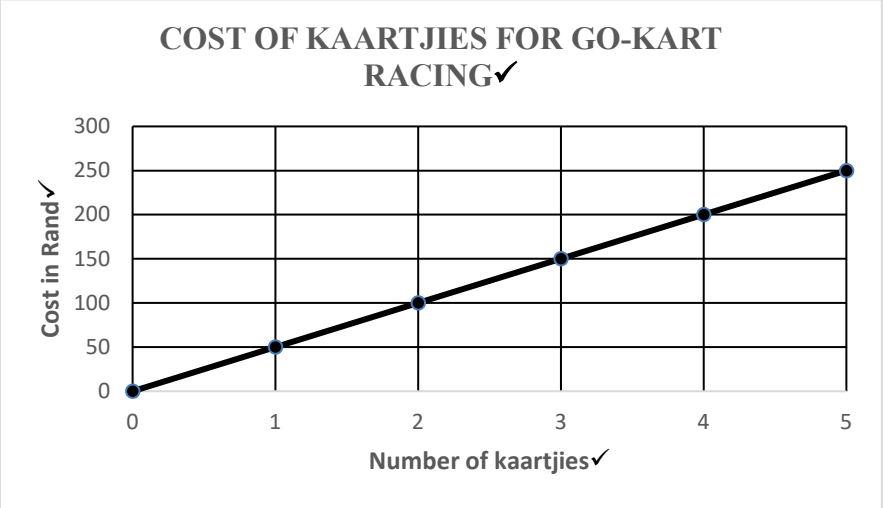
|---|---|---|---|---|
| | 4.1.7 | Konstante verskil✓ | 1A | (1) |

| | | |
|---|---|---|
| 4.1.8 | <br>1 punt (0;0)✓<br>1 punt (5;250)✓<br>2 punte (Enige 2 ander korrekte punte)✓✓<br>1 punt korrekte lyn✓ | (8) |
| | | **[30]** |

**VRAAG 5**
**(Moenie punte aftrek as die 'R'-teken ontbreek nie. Ken volpunte toe vir slegs die antwoord.)**

| | | | | |
|---|---|---|---|---|
| 5.1. | 5.1.1 | 5km/h en 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 | $\text{gemiddelde} = \frac{97+71+\cdots+16}{14}$✓<br>$= \frac{845}{14}$✓<br>$= 60{,}36$ km/h✓ | 1 MA<br>1A (som)<br>1CA (2 desimale) | (3) |

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

| | | | | |
|---|---|---|---|---|
| | 5.1.5 | modale $= 64$ km/h✓ en 65 km/h✓ | 2RT | (2) |
| | 5.1.6 | Variasiewydte $= 97$✓ $- 5$✓<br>$= 92$ km/h✓ | 2RT/M<br>1A | (3) |
| | 5.1.7 | Mediaan✓, omdat die gemiddelde van die 2 uitskieters nie geskik is nie en die modale nie alle waardes in die datastel in ag neem nie.✓ | 1A<br>1R/J | (2) |
| | 5.1.8 | Ja✓, die gemiddelde spoed teen alle sentrale neigings is hoër as die spoedbeperking.✓ | 1A<br>1R/J | (2) |

| | | | | |
|---|---|---|---|---|
| 5.2 | 5.2.1 | **INTERVAL IN RAND** / **TELLING** / **FREKWENSIE**<br>0–399 / IIII / 4<br>400–799 / ~~IIII~~ 1✓ / 6✓<br>800–1 199 / llll✓ / 4✓<br>1 200–1 499 / 1✓ / 1✓<br>TOTAAL / 15✓ | 2RT<br>2RT<br>2RT<br>1A | |
| | | Elke telling en korresponderende frekwensie moet korrek wees vir 2 punte per lyn. | | (7) |
| | 5.2.2 | Kussinggeveg✓ | 1RT | (1) |
| | 5.2.3 | Muntstuk opskiet✓ | 1RT | (1) |
| | 5.2.4 | 154 + 678 + 795 + 946 + 444 + 1240 + 587 + 198 + 1128 + 309 + 605 + 469 + 888 + 912 + 394✓ = R9 747✓<br>**(Slegs antwoorde volpunte)** | 1M<br>1A | (2)<br>[30] |

**TOTAAL: 150**

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