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|  | | | Province of the **EASTERN CAPE** EDUCATION | | | |
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| **SENIOR FASE** | | | | | | |
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|  | | | | **GRAAD 9** |  | |
|  | | | | | | |
| **NOVEMBER 2011** | | | | | | |
|  | | | | | | |
| **WISKUNDE**  **NASIENGIDS** | | | | | | |
|  | | | | | | |
| **PUNTE:** | | **100** | | | | |
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|  | Hierdie nasiengids bestaan uit 12 bladsye. | | | | |  |

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| **VRAAG 1** | | | | |  |
|  |  | | | |  |
| 1.1 | A √ | | | | 1 |
| 1.2 | B √ | | | | 1 |
| 1.3 | B √ | | | | 1 |
| 1.4 | A √ | | | | 1 |
| 1.5 | C √ | | | | 1 |
| 1.6 | C √ | | | | 1 |
| 1.7 | C √ | | | | 1 |
| 1.8 | D √ | | | | 1 |
| 1.9 | B √ | | | | 1 |
| 1.10 | D √ | | | | 1 |
|  |  | | | | **[10]** |
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| **VRAAG 2** | | | | | |
|  | | | | | |
| 2.1 | 2.1.1 | S R = ?  Huidige bedrag vir die 1ste jaar : R 12 000  Rente vir die eerste jaar (8,8% of R12 000) :  R 1056,00 √  Huidige bedrag vir die 2de jaar : R 13 056,00  Rente vir die 2de jaar (8,8% of R13 056) :  R 1148,93 √  Bedrag wat Ceolo moet betaal vir Saamgestelde Rente na 2 Jaar is R12 000+ R1 056 + R1 148,93  =R 14204,93  E R = ?  Vir 2 jaar  ER = P . r . t  = 12 000 x 9% x 2  = R 2 160,00  Die bedrag wat Ceolo moet betaal vir ER is  R2 160 + R12 000  = R 14 160,00 √  Die beste opsie vir Ceolo om te kies is Enkelvoudige Rente √ | (4) | Korrekte berekening van rente  Korrekte bedrag na 2 jaar  Korrekte ER bedrag  Korrekte keuse | |
|  |  |  |  |  | |
|  | 2.1.2 | Bedrag wat Coelo se vriend in rand moet betaal  R12 000    Dollars($ ) wat deur vriend gestuur word=  = $ 1 685, 39 √ | (1) | Korrekte antwoord | |
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| 2.2 |  | 150 liters : 1 min  81 000 liters : x min.  =  150 x = 81 000  x =  = 540 min.  1 uur. : 60 min    x uur. : 540 min. √  =  60x = 540  x =    = 9 ure. √  Daarom sal dit 9 ure neem om die tenk  met ŉ volume van 81 000 liters vol te maak | (2) | Tyd geneem in min.  Antwoord in ure |
|  |  |  | **[7]** |  |
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|  |  | **VRAAG 3** |  |  |
|  |  |  |  |  |
| 3.1 | 3.1.1 | =  √  =  √  =  √ | (3) | Verandering van die deelteken  Vereenvoudiging  Antwoord |
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|  |  | (4 – 3x)(3x + 2) + 7x - (1 – 2x)    = 12x + 8 – 9x - 6x + 7x - 1 + 2x √ √  = – 9x + 7x+ 2x+ 12x - 6x + 8 - 1 √  = 6x + 7 √ | (4) | Verwydering van die hakie  Groepering van gelyksoortige terme  Antwoord |
|  |  |  |  |  |
| 3.2 | 3.2.1 | 36abc + 16ab - 4abc  = 4ab (9abc + 4b - c ) √√ | (2) | Antwoord |
|  |  |  |  |  |
|  | 3.2.2 | 25a - 49b  = (5a – 7b)(5a + 7b) √√ | (2) | Antwoord |
|  |  |  |  |  |
| 3.3 |  | 5 - 3 = (5 – 3)(5 + 3) √  = 2 x 8  = 16 √ | (2) | Faktorisering  Antwoord |
|  |  |  |  |  |
| 3.4 | 3.4.1 | 5 =  5 = 5 √  x = - 3 √ | (2) | Verandering na eksponentvorm  Antwoord |
|  |  |  |  |  |
|  | 3.4.2 | √  4(x +3) – 2(x- 2 ) = x + 4  4x + 12 – 2x + 4 = x + 4 √  2x + 16 = x + 4  2x - x = - 16 + 4 √  x = - 12 √  **OF** | (4) | Vermenigvuldiging met KGV  Verwydering van hakies  Groepering van gelyksoortige terme  Antwoord |
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|  |  | **OF**          = |  |  |
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| 3.5 | 3.5.1 | 0 = - 1  3 = 2- 1  8 = 3- 1  die reël is, die vierkant (kwadraat) van die insetwaarde  minus 1 i.e. x - 1 √√ | (2) | Antwoord |
|  |  |  |  |  |
|  | 3.5.2 | y = x - 1  = (17) - 1  = 289 – 1 = 288  A d.w.s. y = 288 wanneer x = 17 √ | (1) | Antwoord |
|  |  |  |  |  |
|  | 3.5.3 | x - 1 = y  x - 1 = 528  x = 529 √    x =    = 23  B B d.w.s x = 23 wanneer y = 528 √ | (2) | Vereenvoudiging  Antwoord |
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| 3.6 | 3.6.1 | |  | | | | | |  | |  | |
| Vir 2x + 3y = 6  If x = -3 x = 0 x = 3  2(-3) + 3y =6 2(0) + 3y = 6 2(3) + 3y = 6  -6 + 3y = 6 3y = 6 6 + 3y = 6  3y = 12 y = 2 3y = 0  y = 4 y = 0  pt (-3; 4) pt (0;2) pt (3;0)  vir y = x + 2  if x = - 3 x = 0 x = 3  y = -3 + 2 y = 0 + 2 y = 3 + 2  y = -1 y = 2 y = 5  pt (-3;-1) pt (0;2) pt (3;5) | | | | | | | | | | | | |
|  | | | | | | | | | | | | |
| **OF**  2x + 3y = 6 ……… vergelyking 1    3y = -2x + 6  y =  √ korrekte standaardvorm van vergelyking 1    y = x + 2 ……… vergelyking 2 | | | | | | | | | | | | |
|  | | | | | | | | | | | | |
| x | | -3 | | -2 | -1 | 0 | 1 | 2 | | 3 | | Korrekte tabel vir vergelyking 1  √ |
| y = | | 4 | | 3 | 2 | 2 | 1 |  | | 0 | |
|  |  | | | | | | | | | | |  |
| x | | - 3 | | -2 | -1 | 0 | 1 | 2 | | 3 | | Korrekte tabel vir vergelyking 2  √ |
| y = x + 2 | | -1 | | 0 | 1 | 2 | 3 | 4 | | 5 | |
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| vervolg 3.6.1 6\_ y = x + 2  5 \_  √√ korrekte skets  4\_ van grafieke    3\_    2    1\_ √ korrekte skets van  beide grafieke    | | | | | | | | | | | X  -5 -4 -3 -2 -1 0 1 2 3 4 5 6  -1\_  2x + 3y = 6  -2\_    (6) | | | | |
|  |  |  |  |  |
|  | 3.6.2 | (0;2) √ | (1) |  |
|  |  |  | **[31]** |  |
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|  |  | **VRAAG 4** |  |  |
|  |  |  |  |  |
|  |  | d.w.s.  √  10p = 180    p = 18 cm √ | (2) | Kruisvermenigvuldiging  Antwoord |
|  |  |  |  |  |
|  | 4.1.2 | Die ooreenstemmende sye van die twee driehoeke  is eweredig. √ | (1) |  |
|  |  |  |  |  |
| 4.2 | 4.2.1 | LM = LO + OM  = 6 cm + 3 cm √  LM = 9cm  Soortgelyk QO= QM + MO  = 6cm + 3 cm √  QO = 9 cm    LM = QO | (2) | Lengte van LM  Lengte van QO |
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|  | 4.2.2 | In  POQ en  NML  POQ =  NML = 90 (PO LQ &  MN  LQ ) √  PQ = LN (gegee) √    OQ = ML bewys in 4.2.1  POQ   NML (RK) √ | (3) | Stelling  Stelling  Gevolgtrekking |
|  |  |  |  |  |
| 4.3 | Gereflekteerde beeld 10\_  9 \_ vergrote beeld  8 Y'(0;8)  √√ 7 \_ √ √  6 \_  5 \_  **.** **.** 4 Y(0;4) **.** **.**  *Z''(-6;4)* *X''(-2;4)* 3 \_ X'(2;4) Z'(6;4)  2 \_ **. .**  1 \_ x(1;2) z(3;2)  | | | | | | | | | | | | | | | | | | |  -8 -6 -4 -2 -1 \_ 2 4 6 8 10  -2 \_  -3 \_ | | | |
|  | 4.3.1 | Sien vergrote beeld in diagram hierbo √√ | (2) | Korrekte vergroting |
|  |  |  |  |  |
|  | 4.3.2 | Verwys na gereflekteerde beeld in diagram hierbo √√ |  | Korrekte vergroting |
|  |  |  |  |  |
|  | 4.3.3 | X(-2; 4) Y(0; 8) & Z (-6 ; 4) √√ |  |  |
|  |  |  |  |  |
| 4.4 | 4.4.1 | KMN = 3x (verwiss. e LK// MN ) √  2x + 3x + x = 180 (e op ŉ reguitlyn)√  6x = 180    x = 30 √ | (3) | Stelling /rede  Stelling /rede  Antwoord |
|  |  |  |  |  |
|  | 4.4.2 | LKM = 3x  = 3(30)  = 90 √ | (1) | Antwoord |
|  |  |  |  |  |
|  | 4.4.3 | Driehoek MKL is ŉ reghoekige driehoek √ | (1) | Antwoord |
|  |  |  | **[19]** |  |
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|  |  | **VRAAG 5** |  |  |
|  |  |  |  |  |
| 5.1 | 5.1.1 | 2 (l + b ) = 48  2 (l + b ) = 48  2 2  l + b = 24  Maar l = (48)  l = 16 m √  l + b = 24  16 + b = 24  b = 24 – 16  b = 8m √ | (2) | Korrekte berekening van lengte  Korrekte berekening van breedte |
|  |  |  |  |  |
|  | 5.1.2 | 2(l +  b) = P [P is die omtrek van die Ongeskakeerde gedeelte]  2 (x16 +  8) = P √  2(12 + 4 ) = P  2 (16) = P  32 = P √  Die Omtrek van die ongeskakeerde gedeelte is 32 m | (2) | Substitusie  Antwoord |
|  |  |  |  |  |
| 5.2 |  | (VA) = (VO)+(OA)(Pythagoras Stelling) √  (VA) = (12) + (5)    = 144 + 25  = 169  VA =  = 13 cm √ | (2) | Stelling/rede  Antwoord |
|  |  |  | **[6]** |  |
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|  |  | **VRAAG 6** | | |  |  |
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| 6.1 | 6.1.1 | Skool A ontvang 44% van R94 000  =  x  = R 413 600 √ | | | (1) | Antwoord |
|  |  |  | | |  |  |
|  | 6.1.2 | X˚ =  x  √  = 79,2 √ | | | (2) | Wetend dat ŉ volkome sirkel 360º het  Antwoord |
|  |  |  | | |  |  |
|  | 6.1.3 | Skool C het 12% of R94 000  = x R94 000  = R11 280 √  Skool C ontvang R11 280 + R 5 300    = R 16 580,00 √ | | | (2) | Bedrag deur Skool C ontvang  Antwoord |
|  |  |  | | |  |  |
| 6.2 | 6.2.1 | Gebied (Variasiewydte) = 73 – 17  = 56 √ | | | (1) | Antwoord |
|  |  |  | | |  |  |
|  | 6.2.2 | Mediaan =  =  = 43,5 √ | | | (1) | Antwoord |
|  |  |  | | |  |  |
|  | 6.2.3 | Frekwensietabel van 50 ouers wat ouervergadering bygewoon het | | |  |  |
|  |  |  | | |  |  |
|  |  | Interval √ | Telling √ | Frekwensie √ |  | Interval  1 punt  Telling  1 punt  Frekwensie  1 punt |
| 0 - 10 | - | 0 |
| 11 - 20 | / / / / | 4 |
| 21 - 30 | / / / / / | 6 |
| 31 - 40 | / / / / / / / / | 10 |
| 41 - 50 | / / / / / / / / / | 11 |
| 51 - 60 | / / / / / / / / | 10 |
| 61 - 70 | / / / / / | 6 |
| 71 - 80 | / / / | 3 |
|  |  |  | Totaal | 50 | (3) |  |
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| 6.3 |  | Die totale liggaamsmassa van 5 ouers is  51 + 56 + 54 + 59 + 53 = 273 √  Die gemiddelde liggaamsmassa van 6 ouers is 56 kg  Die totale liggaamsmassa van 6 ouers is 6 x 56 = 336 kg√  Die liggaamsmassa van die 6de ouer = 336 – 273  = 63 kg √ | (3) | Totale liggaamsmassa van 5 ouers  Totale liggaamsmassa  van 6 ouers  Antwoord |
|  |  |  |  |  |
|  | 6.4.1 | **% Punte behaal deur Alive in 6 Toetse**  Y  24\_  22\_ x √ Opskrif    20\_ x  P  U 18\_ √ Korrekte skaal op elke  N x as  T 16\_ x  √ Benoeming van asse  14\_  I x  N 12\_ √ korrekte grafiek    10\_  P  E 8\_ (4)  R  S 6\_  E  N 4\_ x  T  2\_  | | | | | | | | |  0 1 2 3 4 5 6 7 8 9 X  TOETSNOMMER | | |
|  |  |  |  |  |
|  | 6.4.2 | Gemiddelde % van toetspunte  =  √  =  = 15,33 % √ | (2) | Berekening van die som  Antwoord |
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| 6.5 | 1ste Keuse 2de Keuse Uitkomste    G GG  G GG    G W GW  B GB  G GG  √  S  G G GG  W GW  B GB  √  G WG  W G WG  W WW  B WB √ √  B G BG  G BG  W BW  B BB | | (4) | 1ste Keuse  2de Keuse  Alle korrekte moontlike Uitkomste  Ontgaan een uitkoms 1,  Ontgaan meer as een uitkoms, geen punt |
|  |  |  |  |  |
| 6.5 | 6.5.1 | P (Wit telkaart ) =  √ | (1) | Antwoord |
|  |  |  |  |  |
|  | 6.5.2 | P (Wit en Swart telkaarte) =  =  √ | (1) | Antwoord |
|  |  |  |  |  |
|  | 6.5.3 | P (ten minste een Swart telkaart) =  √ √ | (2) | Antwoord |
|  |  |  | **[27]** |  |
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|  |  | **TOTAAL:** | **100** |  |