

**HOËRSKOOL BRANDWAG**

**EKURHULENI NOORD DISTRIK**

**Junie-eksamen 2019**

**WISKUNDE Eksamenvraestel 2**

**GRAAD 12**

**7 Junie 2019**

**MEMORANDUM**

|  |  |
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| **VRAAG** | **Totaal** |
|
| **1** | **6** |
| **2** | **10** |
| **3** | **7** |
| **4** | **20** |
| **5** | **8** |
| **6** | **11** |
| **7** | **28** |
| **8** | **13** |
| **9** | **16** |
| **10** | **17** |
| **11** | **14** |
| **TOTAAL** | **150** |

* Volgehoue akkuraatheid is op ALLE aspekte   
   van die nasienriglyne van toepassing.
* Dit is onaanvaarbaar om waareds/antwoorde   
   te veronderstel om ‘n probleem op te los.

**EUKLIDIESE MEETKUNDE**

* ✓S - ‘n punt vir slegs die bewering
* ✓R – ‘n punt vir die korrekte rede mits die   
   bewering ook korrek is
* ✓S/R – ‘n punt vir beide die bewering en rede   
   mits beide korrek is
* ✓S ✓R – ‘n punt vir korrekte bewering en nog   
   ‘n punt vir korrekte rede

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|  | **VRAAG 1 [6]** | |
| 1.1 |  | ✓ antwoord (1) |
| 1.2 | Skeef na links/negatief skeef ()  25% bo die derde kwartiel | ✓antwoord (1) |
| 1.3 |  | ✓antwoord (1) |
| 1.4 | (**slegs antwoord = volpunte)** | ✓  ✓ (2) |
| 1.5 |  | ✓antwoord (1) |
|  | **VRAAG 2** |  |
| 2.1 | 21 leerders | ✓antwoord  (1) |
| 2.2 | 3 bladsye | ✓ antwoord  (1) |
| 2.3 | (distrkete data) | ✓  ✓antwoord  (2) |
| 2.4 |  | ✓✓antwoord   (2) |
| 2.5 |  | ✓  ✓13  ✓antwoord (3) |
| 2.6 | Die gemiddeld ( sal verhoog | ✓antwoord  (1) |
|  | **VRAAG 3 [6]** | |
| 3.1.1 | |  |  |  | | --- | --- | --- | | **Klas** | **Frekwensie** | **Kumulatiewe frekwensie** | |  | 1 | 1 | |  | 7 | 8 | |  | 13 | 21 | |  | 17 | 38 | |  | 9 | 47 | |  | 5 | 52 | |  | 2 | 54 | |  | 1 | 55 | | ✓8  ✓55 (2) |

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| 3.1.2 |  | | | | | | | | |
|  | ✓ Geanker by (20; 0)  ✓ Plot van boonste grense  ✓ S-vorm (3) | | | | | | | | |
| 3.2 | 55 - 38 of 9+5+2+1  = 17 motoriste (**slegs antwoord = volpunte)** | | | | | | | ✓optel/aftrek  ✓17 (2) | |
|  | **VRAAG 4 [20]** | | | | | | | | |
| 4.1 | C ( -4 ; 7 ) | | | | | | | ✓  ✓  ✓  **slegs antwoord volpunte**  (3) | |
| 4.2 | *ll* | | | | | | | ✓  ✓    ✓  ✓ (4) | |
| 4.3 |  | | | | | | | ✓  ✓  ✓  ✓  (4) | |
| 4.4 |  | | | | | | | | ✓ afstandformule  ✓✓waarde van twee   sye van driehoek  ✓Trigonometriese   verhouding  ✓antwoord |
|  | **OF** | | | **OF** | | | | | ✓  ✓  ✓  ✓  ✓   (5) |
| 4.5 | of | | | | | | | | ✓  ✓  ✓  ✓ /     (4) |
|  | **VRAAG 5 [8]** | | | | | | | | |
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| 5.1 | deur ( -2 ; 1 ) | | | | | ✓ substitusie  ✓ vereenvoudig  (2) | | | |
| 5.2 |  | |  | | | **✓**  **✓**  **✓**  **✓**  **✓**  **✓**Beide bewering en rede  (6) | | | |
| ARBC is 'n koordevierhoek  **Rede:** gelyke koorde; gelyke hoeke OF  lyn AC onderspan gelyke hoeke OF   omgekeerde van hoeke in dieselfde segment | | | | |
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|  | **VRAAG 6 [11]** | | | | | | | | |
| 6.1 |  | | | | ✓  ✓  ✓  ✓  ✓ (5) | | | | |
| 6.2 | (radiusraaklyn)  **(** Pythagoras )    *k = -2 of k = 8* | | | | ✓B/R  ✓  ✓  (standaardvorm)  ✓  (beide faktore)  ✓  Beide waardes  ✓  (6) | | | | |
|  | **VRAAG 7 [28]** | | | | | | | | |
| 7.1 |  | | | |  | | | | |
| 7.1.1 |  | | | | ✓  ✓  (2) | | | | |
| 7.1.2 | (Pythagoras)    **OF** | | | | ✓driehoek met  en Pythagoras  ✓  **OF**  ✓  ✓ (2) | | | | |
| 7.1.3 | **OF** | | | | ✓  ✓  ✓  **OF**  ✓  ✓  ✓ (3) | | | | |
| 7.1.4 | **OF**      (vanuit 7.1.3) | | | | ✓  ✓  ✓  (3)  **OF**  ✓  ✓  ✓2p-1 vanuit 7.1.3(3) | | | | |
| 7.2 |  | | | | ✓  ✓  ✓  ✓  ✓  ✓ (6) | | | | |
| 7.3.1 | Bewys dat:    = RK | | | | ✓  ✓  (2) | | | | |
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| 7.3.2 | | Bewys dat: | | | ✓  ✓  ✓  ✓vervanging en  (4) | | | | |
| 7.4 | | verw. hoeke of  kwadrant. 1: kwadrant 3:  of 210  kwadrant 2: kwadrant 4:  of 330 | | | ✓  ✓  ✓  ✓en  ✓  ✓330  (6) | | | | |
|  | | **VRAAG 8**  **[13]** | | | | | | | |
| 8.1.1 | |  | | | **✓**  **✓**  (2) | | | | |
| 8.1.2 | |  | | | **✓**kritiese waardes  **✓** ongelykheidstekens     (2) | | | | |
| 8.1.3 | | Die grafiek van g het na links transleer en daarna ‘n reflkeksie om die  *x*-as ondergaan.  **OF**  Die grafiek is om die *x*-as gereflekteer en daarnana regs transleer  **OF**  Die grafiek van g het  na links transleer | | | ✓ na links  ✓refleksie om *x*-as  **OF**  ✓ na regs  ✓refleksie in *x*-as  **OF**  ✓✓skuif na links  (2) | | | | |
| 8.2 | |  | | | | | | | |
| 8.2.1 | | (Buite  van ∆ ) | | | **✓**  (1) | | | | |
| 8.2.2 | | **(**e teenoor gelyke sye)  InPQR: | | | | | ✓  ✓  ✓    ✓  ✓  ✓  (6) | | |

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|  | **VRAAG 9 [16]** | |
| 9.1 |  | |
| 9.1.1 | **✓S**  ( middelpunts = 2 x omtreks)**✓R** | (2) |
| 9.1.2 | **✓S**  ( verw. e , PW ║ SO )**✓R** | (2) |
| 9.1.3 | ( teenoor gelyke sye / radii WO=OS ) **✓S/R**  ( binne  van  ) **✓R**  **✓S** | (3) |
| 9.1.4 | **✓S**    ( teenoorst e van koordevh. ) **✓R**  **✓S** | (3) |

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| 9.2 |  | |
|  | **✓S** ( in halwe sirkel ) **✓R**  ( looddlyn uit midpt. sirkel na koord ) **✓S/R**  (Pythagoras) **✓S/R**  **✓S**  **✓S** | (6) |

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|  | **VRAAG 10 [17]** | |
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| 10.1 | **✓S** ( tussen raaklyn en koord) **✓R**  **✓S** ( teenoor gelyke sye / radii ) | (3) |
| 10.2 | (gegee)  (in halwe sirkel ) **✓S/R**  **✓S** (beiede)  is a koordevierhoek (buite  van vierhoek = teenoorst. binne  ) **✓R** | (3) |
| 10.3 | (buite  van  ) **✓S/R**  (aangrensende e op ‘n reguitlyn )  (radius  raaklyn ) **✓S/R**  In EMD  (binne e van )  **✓S**  ()  CM is 'n raakln. aan sirkel MED. ( tussen lyn en koord =in teenoorst. segm. ) **✓R** | (4) |
| 10.4 | MB = 2BC (gegee)  MC = MB + BC  = 2BC + BC  = 3BC/3r **✓S**  MB = MD (radii)  MD = 2BC/2r **✓S**  (Pythagoras)  **✓S** | (3) |

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| 10.5 | In DBC en DFM  **✓S**  (buite van koordevh. ) **✓R**  **✓S**  (beide = *x* / bewys)  (binnee van  )  **|||** (∠∠∠) **✓R** | | (4) |
|  | **VRAAG 11 [14]** | | |
| 11.1 |  | | |
|  | Konstruksie: Verbind DC en BE  en hoogtes      MAAR opp. (selfde basis, selfde hoogte) | **✓konstruksie**  **✓S**  **✓S**    **✓S**  **✓R**  **✓S**  (6) | |

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| 11.2 |  | |
| 11.2.1 | In ΔHKG | **✓ R** (lyn ║ een sy van Δ )  of  ( EF ║KH )  **✓ antwoord**  (3) |
| **✓S** |
| DG = 6 eenhede |
| 11.2.2 | **✓S**    **✓ S**  **✓S**  of    of  **✓S**  **OF**  In ΔHKG:  **✓ S**  **✓ S**  12-2FD = 2+FD**✓ S**  10 = 3FD  **✓ S**  of | **✓R** (lyn ║ een sy van Δ )  of  ( EF ║KH )  GH = HD + DG = 2 + 6 =8  **✓R** (lyn ║ een sy van Δ )  (5) |

**GROOTTOTAAL: 150**