



# basic education

Department:  
Basic Education  
**REPUBLIC OF SOUTH AFRICA**

**NASIONALE  
SENIOR SERTIFIKAAT**

**GRAAD 12**

**INGENIEURSGRAFIKA EN -ONTWERP V2**

**NOVEMBER 2025**

**NASIENRIGLYNE**

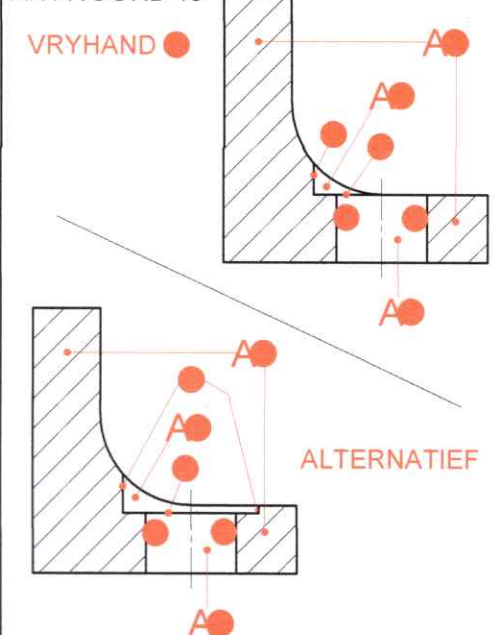
**PUNTE: 100**

**Hierdie nasienriglyne bestaan uit 7 bladsye.**

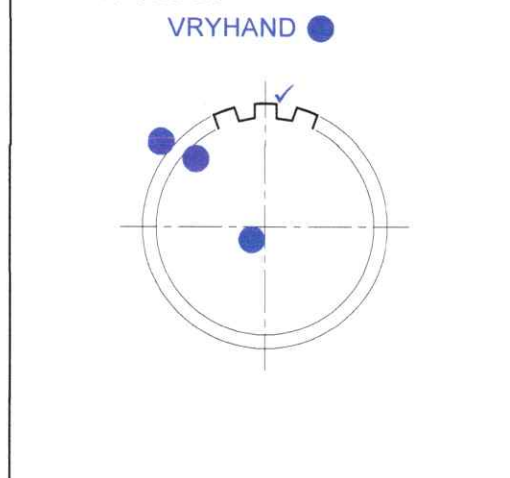
# ANTWOORDE

|        |                                                                                         |    |
|--------|-----------------------------------------------------------------------------------------|----|
| 1      | JJ-14213                                                                                | 1  |
| 2      | THOMAS                                                                                  | 1  |
| 3      | DOELGEMAAKTE HOUERS                                                                     | 1  |
| 4      | AUTOCAD 2024                                                                            | 1  |
| 5      | www.protek.co.za                                                                        | 1  |
| 6      | DERDEHOEKSE ORTOGRAFIESE PROJEKSIE                                                      | 1  |
| 7      | 150                                                                                     | 1  |
| 8      | REGTERAANSIG                                                                            | 1  |
| 9      | GEDEELTELIKE                                                                            | 1  |
| 10     | GEWENTELDE                                                                              | 1  |
| 11     | OORKANTS                                                                                | 1  |
| 12     | 3                                                                                       | 1  |
| 13     | 6°                                                                                      | 1  |
| 14     | F: 28                      G: M10                      H: 31                      J: M6 | 4  |
| 15     | MAX - 14.35                                                                             | 1  |
|        | MIN - 13.75                                                                             | 1  |
| 16     | 24                                                                                      | 1  |
| 17     | GEEN MASJINERING                                                                        | 1  |
| 18     | b: <u>PRODUKSIEMETODE / BEHANDELING / DEKLAAG ("COATING") / AFWERKING</u>               | 1  |
|        | d: <u>RIGTING VAN AFWERKING</u>                                                         | 1  |
| 19     | Sien hieronder                                                                          | 4  |
| 20     |                                                                                         | 3  |
| TOTAAL |                                                                                         | 30 |

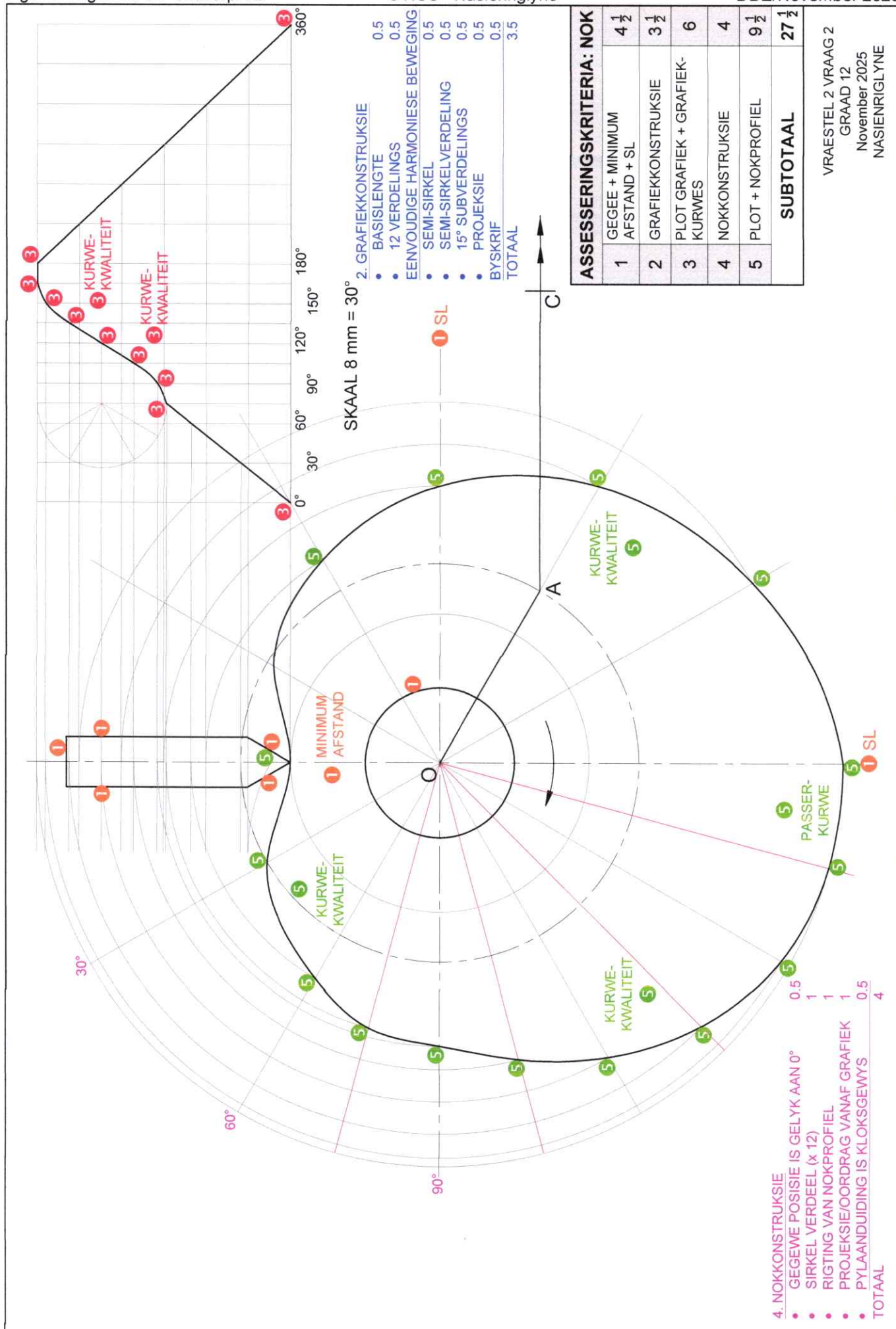
ANTWOORD 19

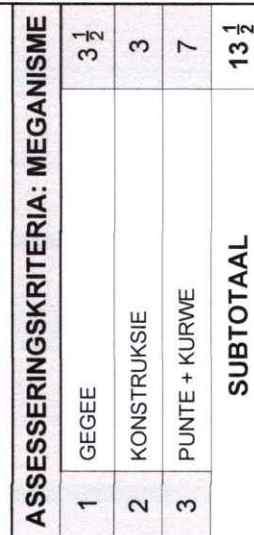


ANTWOORD 20



VRAESTEL 2 VRAAG 1  
 GRAAD 12  
 November 2025  
 NASIENRIGLYNE



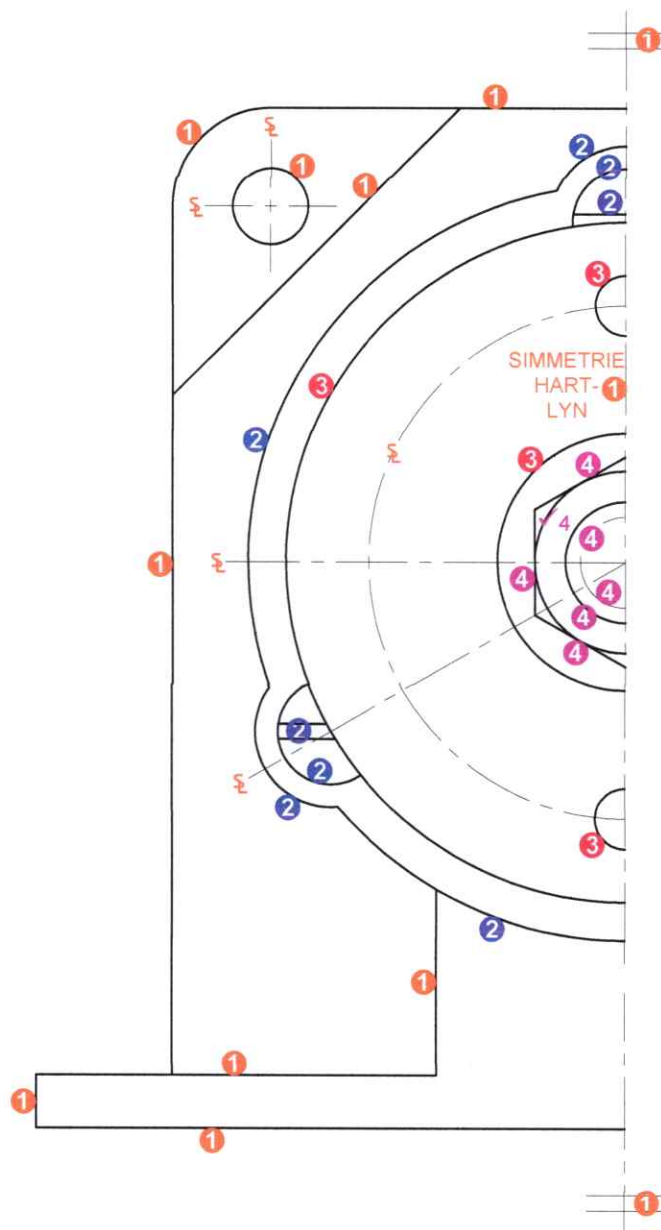


VRAESTEL 2 VRAAG 2  
GRAAD 12  
November 2025  
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| ASSESSERINGSKRITERIA |                        |                  |
|----------------------|------------------------|------------------|
| 1                    | PLASING + HULPAANSIG   | 2                |
| 2                    | VOORSTE GEDEELTE       | 14 $\frac{1}{2}$ |
| 3                    | AGTERSTE GEDEELTE      | 14 $\frac{1}{2}$ |
| 4                    | SIRKELS + KONSTR. + SL | 8                |
| TOTAAL               |                        | 39               |

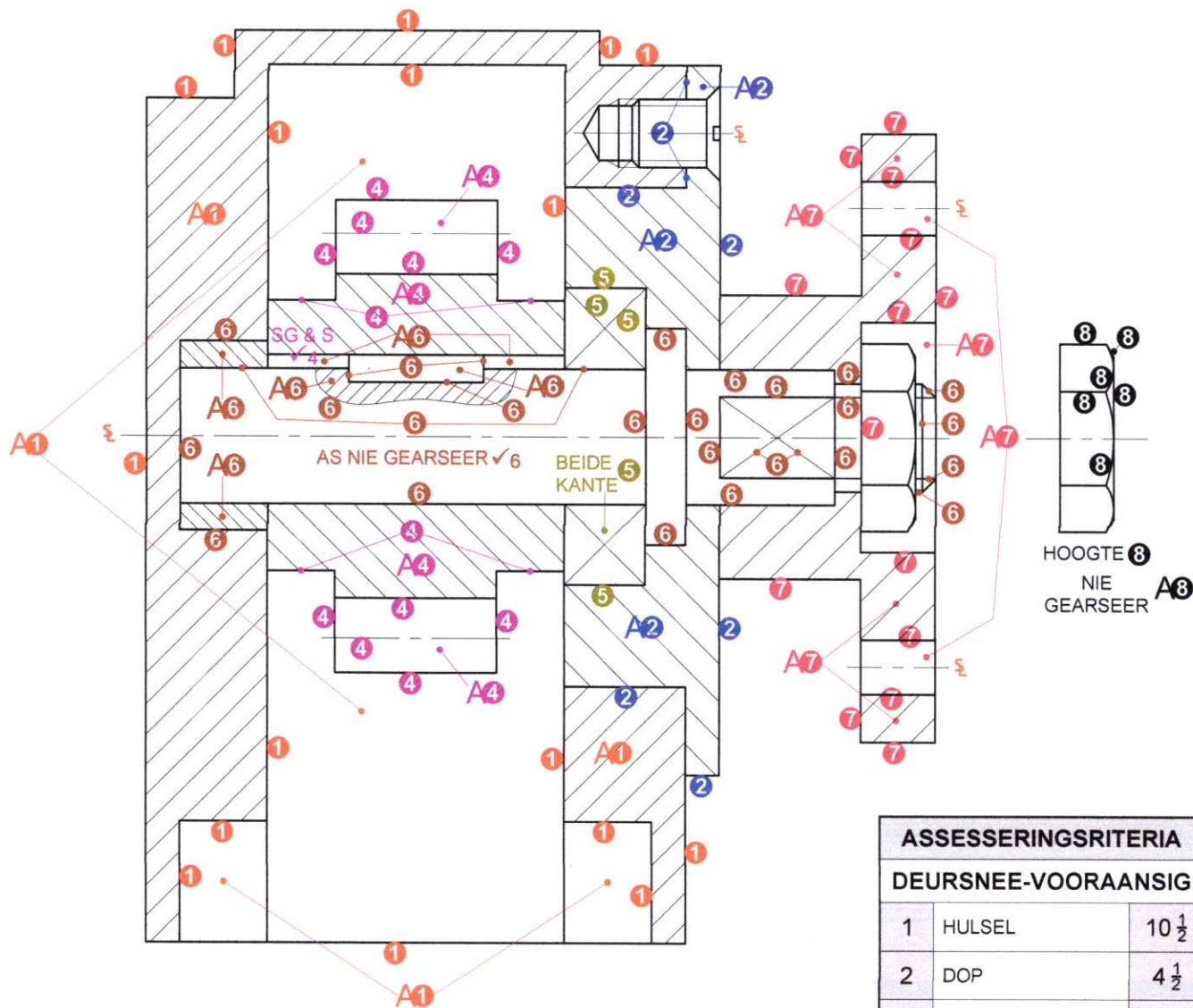
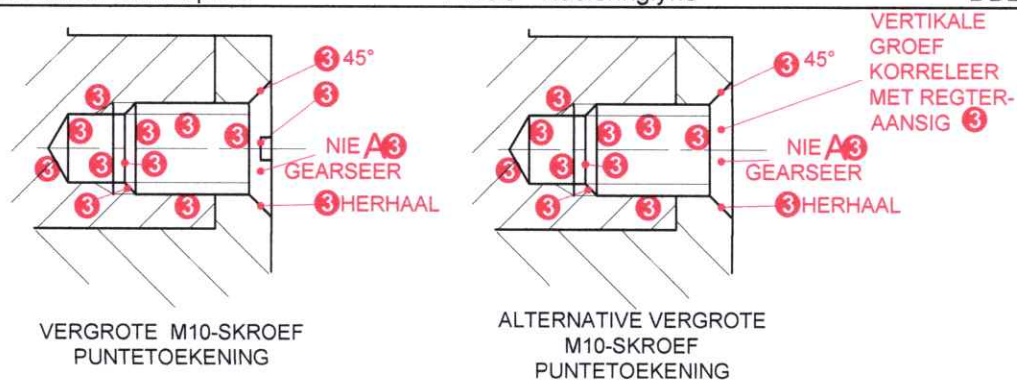
VRAESTEL 2 VRAAG 3  
GRAAD 12  
November 2025  
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1. SENTERLYNE (S)  
 VOLDOEN AAN SANS  
 SENTERLYNE (1 - 3 = 0,5; 4 - 5 = 1; 6 - 7 = 1,5; 8 - 9 = 2) 2  
 3

| ASSESSERINGSKRITERIA |                       |    |
|----------------------|-----------------------|----|
| REGTERAANSIG         |                       |    |
| 1                    | HULSEL +<br>SIMMETRIE | 6  |
| 2                    | DOP + SKOEWE          | 4  |
| 3                    | FLENSKOPPELING        | 2  |
| 4                    | M16-MOER + AS         | 4  |
| SUBTOTAAL            |                       | 16 |

VRAESTEL 2 VRAAG 4  
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2. SAMESTELLING  
1 PUNT VIR ELKE ONDERDEEL KORREK SAAMGESTEL  
(10 ONDERDELE - 1) = 9

| ASSESSERINGSKRITERIA |                |                  |
|----------------------|----------------|------------------|
| DEURSNEE-VOORAANSIG  |                |                  |
| 1                    | HULSEL         | 10 $\frac{1}{2}$ |
| 2                    | DOP            | 4 $\frac{1}{2}$  |
| 3                    | M10-SKROEF     | 7                |
| 4                    | REGUITTANDRAT  | 9                |
| 5                    | KOEËLLAER      | 2 $\frac{1}{2}$  |
| 6                    | AS + SPY + BUS | 15 $\frac{1}{2}$ |
| 7                    | FLENSKOPPELING | 9                |
| 8                    | M16-MOER       | 4                |
| SUBTOTAAL            |                | 62               |

VRAESTEL 2 VRAAG 4  
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