education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

PROVINSIALE ASSESSERING

GRAAD 10

WISKUNDE V2
NOVEMBER 2024
NASIENRIGLYNE

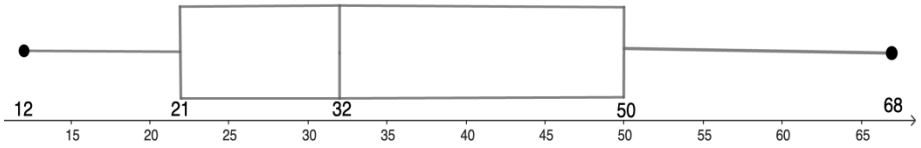
PUNTE: 100

Hierdie nasienriglyne bestaan uit 10 bladsye.

C.A is van toepassing in alle aspekte van die nasienriglyne.

VRAAG 1

1.1



✓ min waarde, maks waarde
✓
✓(Kombinasie)
$Q_1 = 16$
$Q_2 = 30$
$Q_3 = 38$ (3)

1.2 IKV = $Q_3 - Q_1$
= 38 -16
= 22

Slegs antwoord: volpunte

✓ formule
✓ antwoord (2)

1.3 Omvang = maks – min
= 68-12
= 56

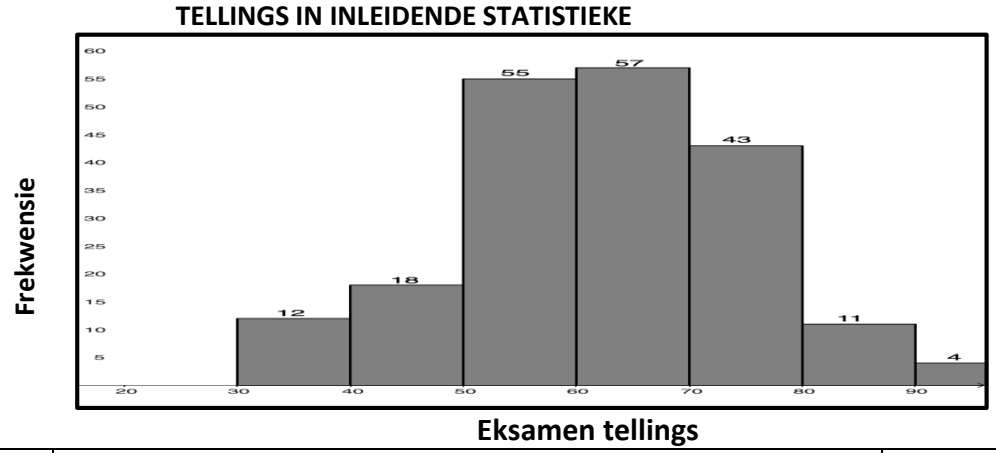
Slegs antwoord: volpunte

✓ formule
✓ antwoord (2)

1.4 Die data het skeefgetrek na regs. ✓ antwoord (1)

[8]

VRAAG 2



2.1 $n = 200$ ✓ antwoord (1)

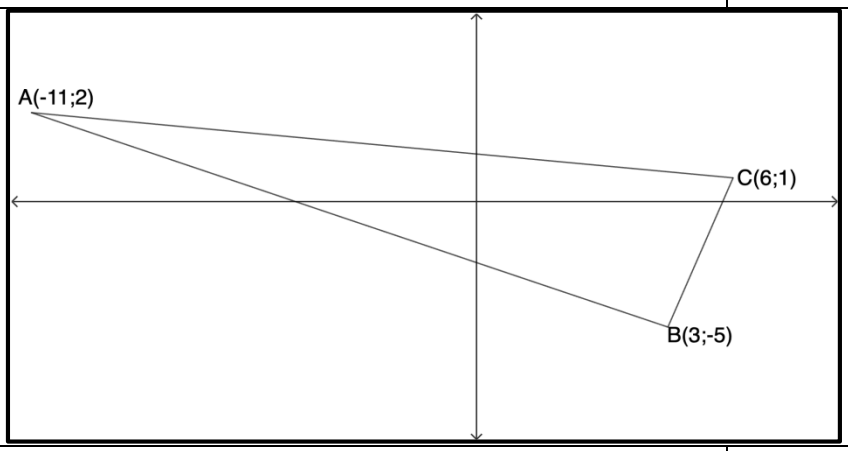
2.2 $60 < m \leq 70$ ✓ antwoord (1)

2.3

Eksamenpunte	Frekwensie	$x.f$
$30 < m \leq 40$	12	420
$40 < m \leq 50$	18	810
$50 < m \leq 60$	55	3025
$60 < m \leq 70$	57	3705
$70 < m \leq 80$	43	3225
$80 < m \leq 90$	11	935
$90 < m \leq 100$	4	380
	200	12500

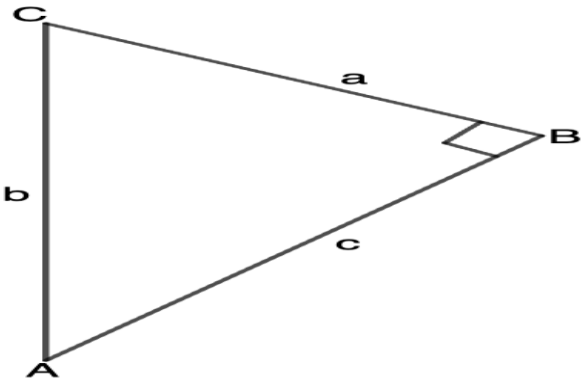
✓ Optel (200)
✓ $x.f$ (12 500)
✓ substitusie
✓ antwoord (4)

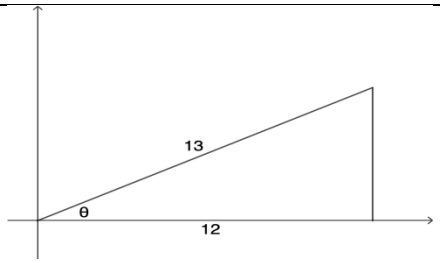
	$\frac{\sum xf}{n} = \frac{12500}{200}$ $= 62,5$	

2.4	$\frac{n+1}{2} = \frac{200+1}{2}$ $= 100,5$ $Q_2 = 60 < m \leq 70$ Slegs antwoord: volpunte	✓ 100,5 ✓ antwoord (2)
2.5	$\frac{3(n+1)}{4} = \frac{3(200+1)}{4}$ $= 150,75$[posisie] $70 < m \leq 80$	✓ antwoord (1)
		[9]
VRAAG 3		
		
3.1	$BC = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ $= \sqrt{(6-3)^2 + (1-(-5)^2}$ $= 3\sqrt{5}$	✓ substitusie ✓ antwoord (2)
3.2	$D = \left(\frac{x_1 + x_2}{2}; \frac{y_1 + y_2}{2}\right)$ $= \left(\frac{-11+3}{2}; \frac{2+(-5)}{2}\right)$ $= \left(-4; -\frac{3}{2}\right)$	✓ formule ✓ substitusie ✓✓middelpunt (4)

3.3	$M_{AB}=\frac{y_2-y_1}{x_2-x_1}$ $M_{AB}=\frac{2-(-5)}{-11-3}$ $M_{AB}=-\frac{7}{14}=-\frac{1}{2}$ $M_{BC}=\frac{y_2-y_1}{x_2-x_1}$ $M_{BC}=\frac{1-(-5)}{6-3}$ $M_{BC}=2$ $M_{AB}\times M_{BC}$ $-\frac{1}{2}\times 2=-1$ AB ⊥ BC $\therefore \hat{ABC}=90°$	✓ formule ✓ substitusie ✓ gradient van AB ✓ gradient van BC ✓ antwoord (5)
3.4	BC=$3\sqrt{5}$ AB=$\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$ AB=$\sqrt{(3-(-11))^2+(-5-2)^2}$ $AB=7\sqrt{5}$ $A=\frac{1}{2}(BC\times AB)$ $=\frac{1}{2}(3\sqrt{5}\times 7\sqrt{5})$ $=\frac{105}{2}\ eenhede^2=52{,}5eenhede^2$	✓ afstand van AB ✓ formule ✓ substitusie ✓ antwoord (4)
		[15]

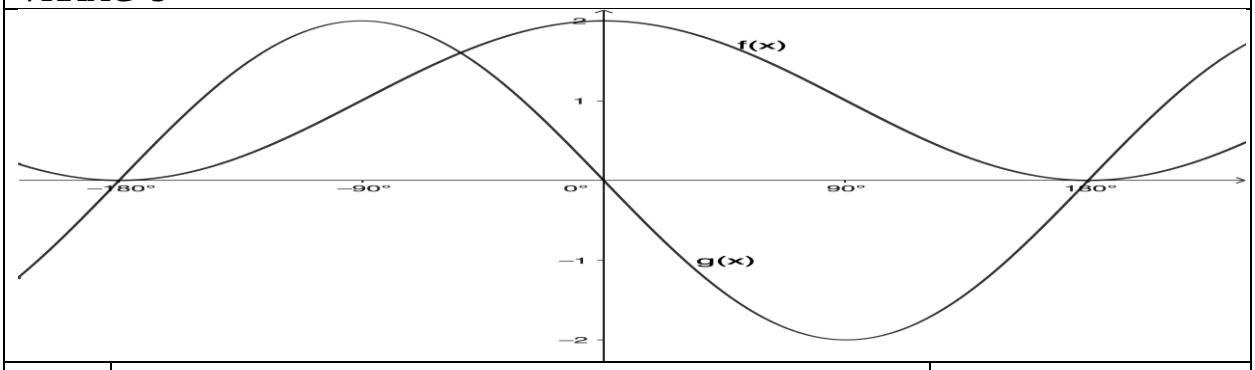
VRAAG 4



4.1.1	$\sin A = \frac{a}{b}$	✓ antwoord (1)
4.1.2	$\cot C = \frac{a}{c}$	✓ antwoord (1)
4.1.3	$\hat{C} = 40° -$ som ∠'e van 'n Δ. $cot\ C = \frac{a}{c}$ $cot\ 40° = \frac{5}{c}$ $c = \frac{5}{cot\ 40°}$ $c = 4.20$	✓ S/R ✓ substitusie ✓ $c = 4.20$ (3)
4.2.1	$13\cos\theta = 12$ $\cos\theta = \frac{12}{13}$ $r^2 = x^2 + y^2$ $(13)^2 = (12)^2 + y^2$ $5 = y$ $\sin\theta = \frac{5}{13}$ 	✓ $\cos\theta = \frac{12}{13}$ ✓diagram ✓ $5 = y$ ✓ $\sin\theta = \frac{5}{13}$ (4)
4.2.2	$\tan\theta - \text{cosec}^2\theta$ $= \left(\frac{5}{12} - (\frac{13}{5})^2\right)$ $= -\frac{1903}{300} = -6{,}34$	✓ $\frac{5}{12}$ ✓ $\frac{13}{5}$ ✓ antwoord (3)

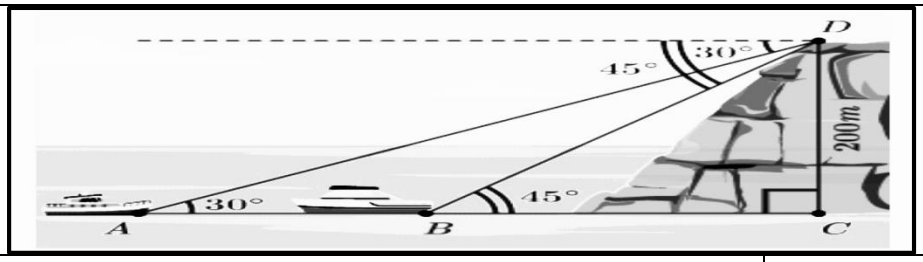
4.3	$\text{cosec}60°.\cot 30° + \cos 45°.\text{cosec}45°.$ $= \frac{2}{\sqrt{3}}.\sqrt{3} + \frac{1}{\sqrt{2}}.\sqrt{2}$ $= 2 + 1$ $= 3$	✓ $\frac{2}{\sqrt{3}}$ ✓ $\sqrt{3}$ ✓ $\frac{1}{\sqrt{2}}$ ✓ $\sqrt{2}$ ✓ 3 (5)
4.4	$3 + \sec x = 5$ $\sec x = 2$ $\frac{1}{\cos x} = 2$ $\cos x = \frac{1}{2}$ $x = \cos^{-1}\left(\frac{1}{2}\right)$ $x = 60$	✓ $\sec x = 2$ ✓ $\frac{1}{\cos x} = 2$ ✓ $x = 60$ (3)
		[20]

VRAAG 5



5.1	$a = 1$ $b = -2$	✓ $a=1$ ✓ $b=2$ (2)
5.2	360°	✓antwoord (1)
5.3	$y \in [0;2]$ of $0 \leq y \leq 2$	✓✓ $y \in [0;2]$ of $0 \leq y \leq 2$ (kombinasie) (2)
5.4	2	✓antwoord (1)
5.5	1 oplossing	✓antwoord (1)
5.6	$0° < x < 180°$ of $x \in (0°;180°)$	✓✓ $0° < x < 180°$ of $(0°;180°)$ (kombinasie) (2)
5.7.1	$h(x) = -\cos x - 3$	✓ $-\cos x$ ✓ -3 (2)
5.7.2	$y \in [-4;-2]$ of $-4 \leq y \leq 2$	✓✓antwoord (kombinasie) (2)
		[13]

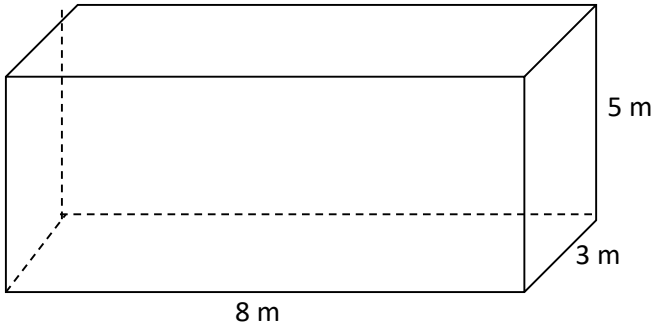
VRAAG 6



6.1	$\hat{B}+\hat{C}+B\hat{D}C=180°-$ som ∠'e van 'n Δ $45°+90°+B\hat{D}C=180°$ $B\hat{D}C=180°-45°-90°$ $B\hat{D}C=45°$	✓ S/R ✓ antwoord (2)
6.2	$\tan B=\frac{DC}{BC}$ $\tan 45°=\frac{200}{BC}$ $BC=200m$ OF BC= 200m- sye teenoor = hoeke	✓ substitusie ✓ antwoord ✓ S✓ R (2)
6.3	$\tan \hat{A}=\frac{CD}{AC}$ $\tan 30°=\frac{200}{AC}$ $AC=\frac{200}{\tan 30°}$ $AC=346.41$ $AC-BC=AB$ $346.41-200=AB$ $146.41=AB$	✓ verhouding ✓ $AC=346.41$ / $200\sqrt{3}$ ✓ Verskil ✓ antwoord (4)
		[8]

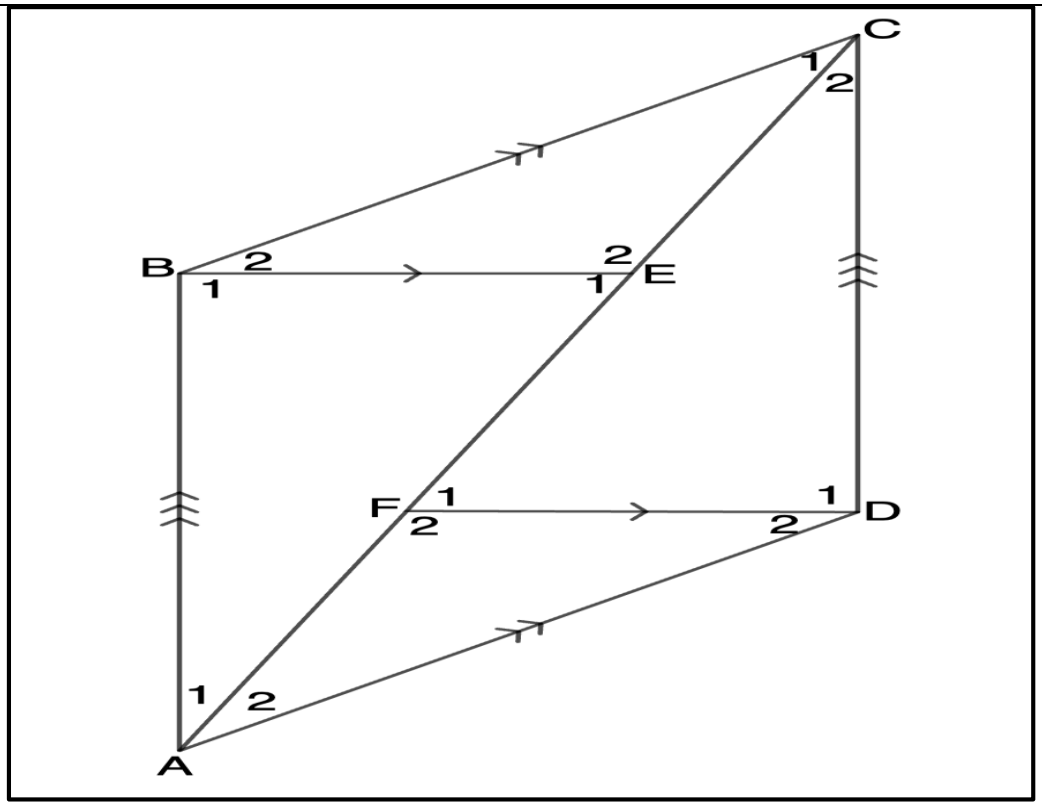
VRAAG 7

V = L.B.H
SA = 2(L.B)+ 2(L.H)+2(H.B)



7.1	$= 2(8\times5) + (2(3\times5)) + 2(3\times8)$ $= 158m^2$	✓ substitusie ✓ antwoord (2)
7.2	$V = L.B.H$ $= 8\times3\times5$ $= 120m^3$	✓ substitusie ✓ antwoord (2)
7.3	$V = L.B.H$ *16* x *9* x *2,5* *360* m^3	✓ ✓ *16* x *9* x *2,5* ✓ antwoord (3)
		[7]

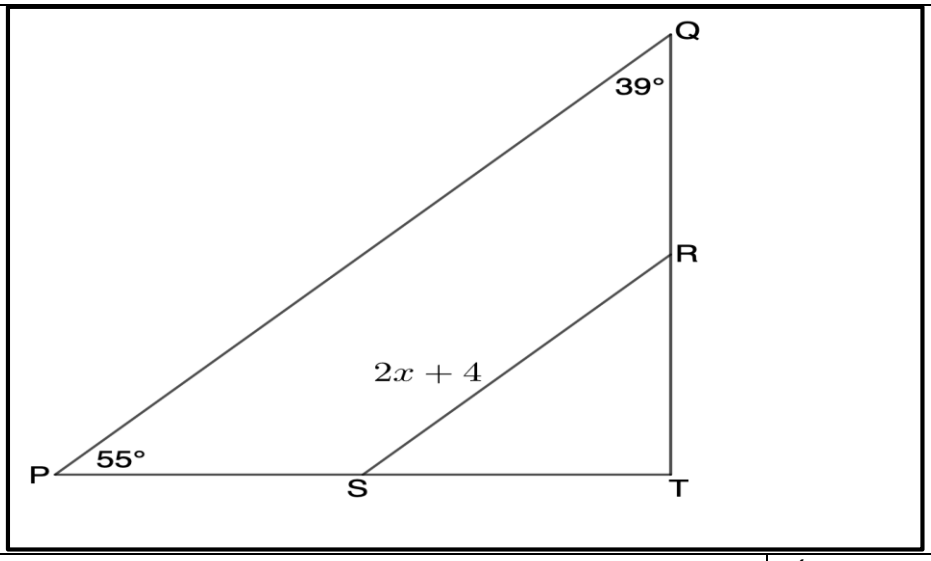
VRAAG 8



8.1.1	AB=CD−teenoost sye van parm is = $\hat{A}_1 = \hat{C}_2$ − verw ∠'s AB∥CD $\hat{E}_1 = \hat{F}_1$ − verw ∠'s BE∥FD ∴ □ABE≡ΔCDF ,HHS	✓S/R ✓S/R ✓S/R ✓ gevolgtrekking (4)

8.1.2	$\hat{C}_1 = \hat{A}_2$ – verw ∠'s BC ∥ AD (H) $\hat{B} = \hat{D}$ – teenoorst ∠'s van 'n parm $\hat{B}_1 = \hat{D}_1$ – bewys (ΔABE≡ΔCDF) $\hat{B}_2 = \hat{D}_2 - (H)$ $\hat{F}_2 = \hat{E}_2$ – som ∠'e van 'n Δ	✓S/R ✓S/R ✓S/R (3)
8.1.3	$\hat{C}_1 = \hat{A}_2$ – bewys $\hat{B}_2 = D_2$ – bewys $BC = AD$ – teenoorst sye van parm is= $\therefore \square CBE \equiv \Delta ADF, HHS$ $AF = CE - kongruente\ \Delta$	✓S/R ✓ S/R ✓ gevolgtrekking (3)
		[10]

VRAAG 9



9.1	PQ =2 x SR –Middelpunt stelling $= 2(2x+4) = 4x+8$	✓ S/R ✓ antwoord (2)

9.2	$18 = 4x + 8$ $18 - 8 = 4x$ $\frac{10}{4} = \frac{5}{2} = x$	✓ $18=4x+8$ ✓ $10=4x$ ✓ antwoord (3)
9.3	RS is 'n middelpunt ∴ SR‖PQ $\hat{Q} = \hat{R} = 39°$–ooreenkomst ∠'s SR‖PQ(H) $\hat{P} = \hat{S} = 55°$–ooreenkomst ∠'s SR‖PQ(H) $\hat{T} = \hat{T}$ – gemeenskaplik ∠(H) ∴ ΔTRS≡ΔTQP,HHH	✓S✓R ✓S✓R ✓ gevolgtrekking (5)
		[10]
		TOTAAL : 100