Graad 9

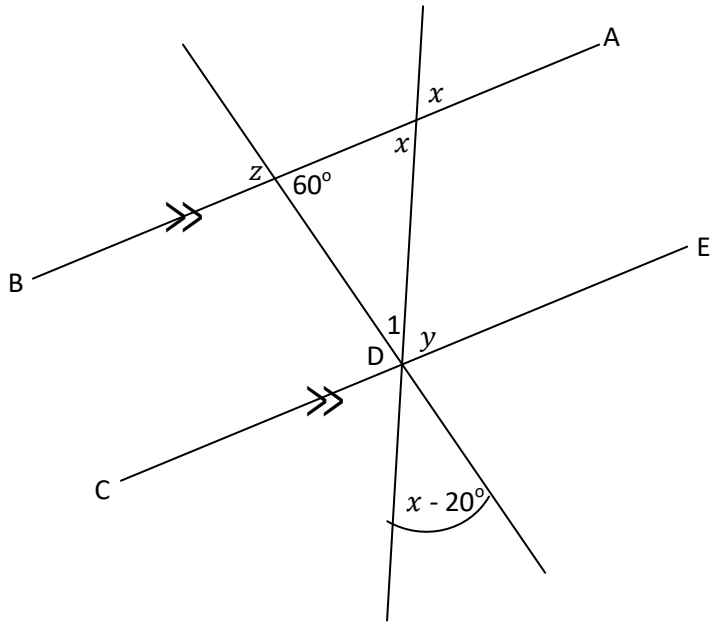
Totaal: 65

Tyd: 1,5 uur

Kwartaal 2 Toets 2022 Memorandum

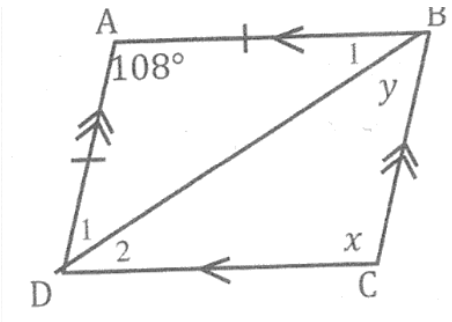
Vraag 1

1.1 Bepaal die grootte van x, y en z in die onderstaande skets, met volledige redes. (9)



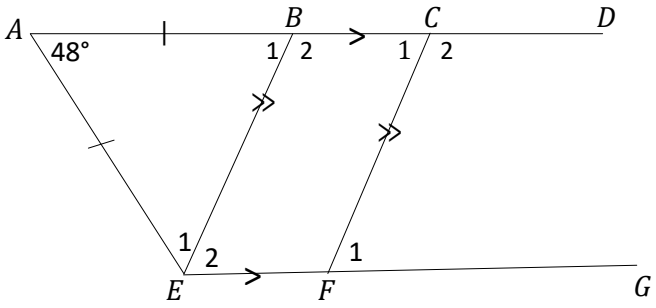
$z = 60°$√ [$regoorstaande\ L'e$]√
$\widehat{D_1} = x - 20°$ √ [$regoorstaande\ L'e$]√
$x - 20° + x + 60° = 180°$ √ [$Binne\ L'e\ van\ \Delta$]√
$2x = 140°$
$x = 70°$√
$y = 70°$√ [$verwisselende\ L'e; AB//EC$] √

1.2 Bepaal die grootte van x en y in die onderstaande skets, met volledige redes. (5)



$\widehat{B_1} = \widehat{D_1} = 36°$ √ $[Binne\ L'e\ van\ \Delta; L'teenoor = sye]$ √
$y = 36°$√ $[verwisselende\ L'e; AD//BC]$√
$x = 180° - 2(36°)$ $[Ko - binne\ L'e; AB//DC]$
$x = 108°$√

1.3 In die onderstaande figuur is $AD \parallel EG$, $BE \parallel CF$ en $\hat{A} = 48°$.



Bereken, met redes:

1.3.1 $\widehat{B_1}$ (2)

$\widehat{B_1} = (180° - 48°) \div 2$ $[Binne\ L'e\ van\ \Delta; L'teenoor = sye]$ √
$\widehat{B_1} = 66°$√

1.3.2 $\widehat{C_1}$ (2)

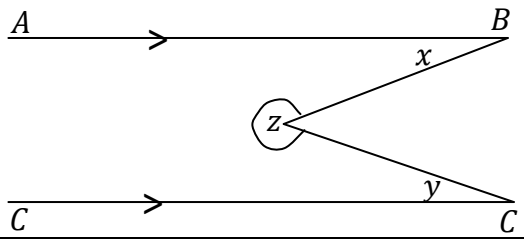
$\widehat{C_1} = 66°$√ $[Ooreenkomstige\ L'e; BE//CF]$ √

1.3.3 $\widehat{F_1}$ (2)

$\widehat{F_1} = 66°$√ $[Verwisselende\ L'e; AD//EG]$ √

1.4 Watter vergelyking is waar? (Skryf slegs die letter van die regte antwoord neer.) (2)

A. $x + y = z$
B. $x + y = 180° - z$
C. $x + y + z = 270°$
D. $x + y + z = 360°$



D√√

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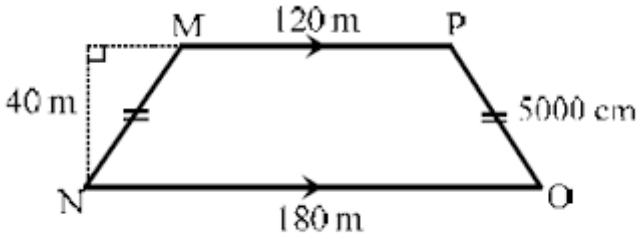
Vraag 2

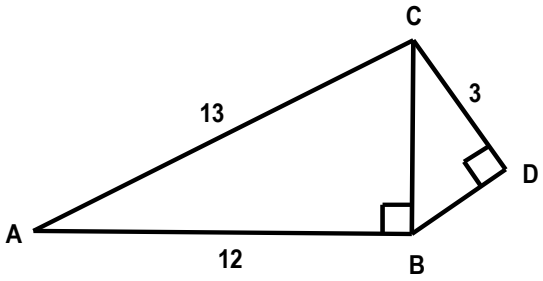
2.1 Bereken (a) die omtrek en (b) die oppervlakte van die onderstaande trapesium MNOP.



(a) die omtrek (3) (b) die oppervlakte (2)

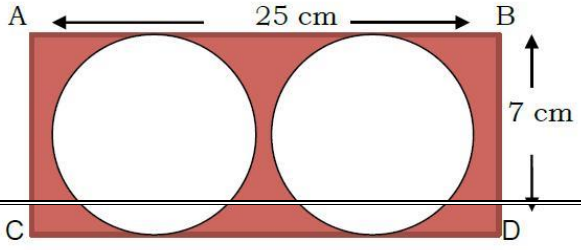
$5000cm = 50\ m$√	$Oppv = \frac{1}{2}(MP + NO).\perp h$
$Omtrek = 120 + 2(50) + 180$√	$Oppv = \frac{1}{2}(120 + 180)(40)$√
$Omtrek = 400\ m$√	$Oppv = 6000\ m^2$√

2.2 Bereken die lengte van BD in die onderstaande skets. (4)



$CB^2 = AC^2 - AB^2\ (pyth)$√
$CB^2 = 13^2 - 12^2$
$CB^2 = 25$
$CB = 5\ eenhede$√
$BD^2 = CB^2 - CD^2\ (pyth)$ √
$BD^2 = 5^2 - 3^2$
$BD^2 = 16$
$BD = 4\ eenhede$√

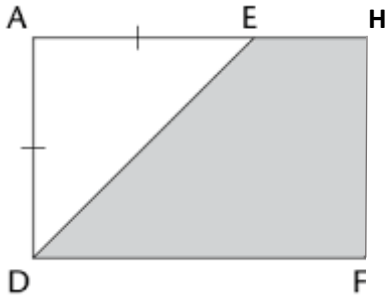
2.3 In die onderstaande skets is ABCD 'n reghoek.



Bereken die oppervlakte van die geskakeerde gedeelte in die skets. (4)

$Oppv = l.b - 2(\pi r^2)$ √formule
$Oppv = (25 \times 7)$√$- 2(\pi . 3.5$√$^2)$
$Oppv = 98{,}03\ cm^2$√

2.4 In die onderstaande figuur is ADFH 'n reghoek. DF = 10m en AE = x.



Bepaal, in terme van x : $\frac{oppv\ van\ trapesium\ DEHF}{oppv\ van\ \Delta ADE}$ (6)

$Oppv\ \Delta ADE = \frac{1}{2}.x.x$
$Oppv\ \Delta ADE = \frac{1}{2}.x^2$√ $eenheid^2$
$Oppv\ DEHF = \frac{1}{2}(10 - x$√$+10)(x)$√
$Oppv\ DEHF = \frac{1}{2}(20 - x)(x)$
$Oppv\ DEHF = 10x - \frac{1}{2}x^2$√ $eenheid^2$
$\frac{oppv\ van\ trapesium\ DEHF}{oppv\ van\ \Delta ADE} = \frac{10x - \frac{1}{2}x^2}{\frac{1}{2}.x^2} = \frac{20}{x}$√$-1$√

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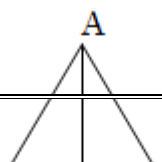
Vraag 3

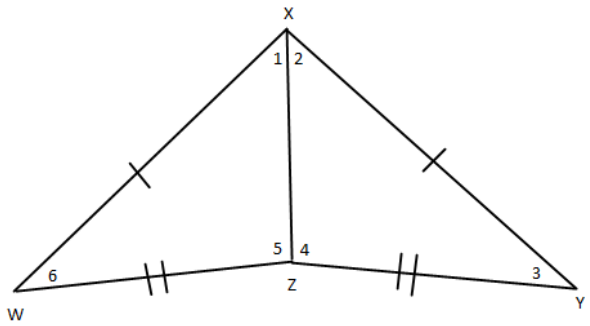
3.1 Voltooi: (4)

3.1.1 $\Delta ABE \equiv \Delta ACE$√ $(L; L; sy)$ √



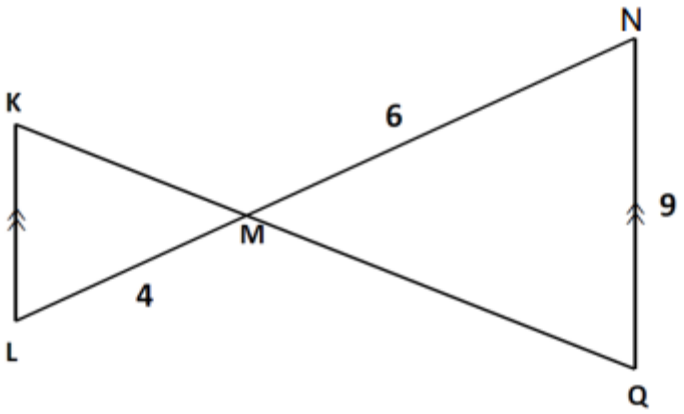
3.1.2 ΔABE√$\equiv \Delta ACE$ $(90°L; skuinssy; sy)$ √

3.2 Bewys, met volledige redes, dat $\Delta XWZ \equiv \Delta XYZ$. (4)



$In\ \Delta XWZ\ en\ \Delta XYZ.$
1. $XW = XY\ (gegee)$ √
2. $WZ = YZ\ (gegee)$ √
3. $XY\ \ (gemeenskaplike\ sy)$ √
$\therefore \Delta XWZ \equiv \Delta XYZ\ (s; s; s)$ √

3.3 Beskou die onderstaande skets en beantwoord die vrae wat volg:



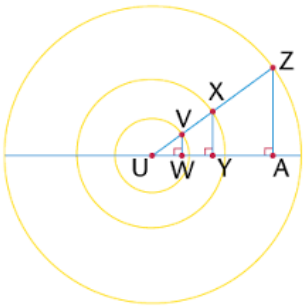
3.3.1 Bewys, met volledige redes, dat $\Delta KLM /// \Delta QNM$. (4)

$In\ \Delta KLM\ en\ \Delta QNM$
1. $K\widehat{M}L = N\widehat{M}Q\ (regoorstaande\ L'e)$ √
2. $\widehat{K} = \widehat{Q}\ (verwisselende\ L'e; KL \parallel NQ)$ √
3. $\widehat{L} = \widehat{N}\ (verwisselende\ L'e; KL \parallel NQ)$√
$\therefore \Delta KLM /// \Delta QNM\ (L,L,L)$ √

3.3.2 Bereken vervolgens die lengte van KL. (3)

$\frac{KL}{QN} = \frac{LM}{NM} = \frac{KM}{QM}\ (\Delta KLM /// \Delta QNM)$√
$\frac{KL}{9} = \frac{4}{6}$√
$KL = 6\ eenhede$√

3.4 Beskou die onderstaande skets en beantwoord die vrae wat volg:



3.4.1 Verskaf 'n rede waarom $VW \parallel XY \parallel ZA$. (1)

Ooreenkomstige L'e = 90°√

3.4.2 Toon aan dat $\Delta UVW /// \Delta UZA$. (4)

$In\ \Delta UVW\ en\ \Delta UZA$
1. $\widehat{U}\ is\ gemeen$ √
2. $\widehat{W} = \hat{A}\ (gegee)$ √
3. $\hat{V} = \hat{Z}\ (binne\ L'e\ van\ \Delta) of\ (ooreenkomstige\ L'e; VW // ZA)$ √
$\therefore \Delta UVW /// \Delta UZA\ (L; L; L)$ √

3.4.3 Indien $UZ = 3x$ en $VZ = 2x$, bewys volledig dat $ZA = 3VW.$ (4)

$\frac{UV}{UZ} = \frac{VW}{ZA} = \frac{UW}{UZ}\ (\Delta UVW /// \Delta UZA)$ √
$\frac{x}{3x}$ √ $= \frac{VW}{ZA}$
$\frac{1}{3} = \frac{VW}{ZA}$ √
$\therefore ZA = 3VW$ √

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Totaal: [65]