

? // lyne nie bygestuif : peneliseer omds.

Graad 9 - Memo

Junie - Vr 2

Vraag 1

- 1.1 C ✓
- 2 F ✓
- 3 A ✓
- 4 D ✓
- 5 B ✓
- 6 H ✓
- 7 G ✓
- 8 E ✓

(8)

1.2

- 1.2.1 Waar ✓
- 1.2.2 Onwaar, $\sin 5 \equiv \sin 170^\circ \equiv \Delta^c$ altyd III ✓
- 1.2.3 Onwaar, $\sin 70^\circ \neq \sin 170^\circ$ ✓
- 1.2.4 Onwaar, (L, L, L) rede III of (S, S, S) (S, L, S) ens. ✓

- Waar ✓
- alles korrek ✓
- alles korrek ✓
- alles korrek ✓

(4)

1.3

- 1.3.1 $x = 10^\circ$ ✓
- 1.3.2 $x = 12^\circ$ ✓
- 1.3.3 $x = 6^\circ$ ✓ ✗
- 1.3.4 $x = 60^\circ$ ✓
- 1.3.5 $x = 48, 5^\circ$ ✓
- 1.3.6 $x = 90^\circ$ ✓

(6)
1181

Vraag 2

2.1 $x + 20^\circ = 3x - 30^\circ$ ✓
 $-2x = -50^\circ$
 $x = 25^\circ$ ✓

(regelmaat \overline{LE})

vgl ✓
rede ✓
antw (3)

2.2 $2x + x = 180^\circ$ (ke-binne \overline{LE} $AB \parallel CD$)
 $3x = 180^\circ$
 $x = 60^\circ$ ✓

regelmaat ✓
antw ✓ (2)

2.3 $a = 50^\circ$ ✓ (overkant \overline{LE} $AB \parallel CD$)

antw ✓
rede ✓

$3b - 20^\circ + b = 180^\circ$ (ke-binne \overline{LE} $FG \parallel DE$)
 $4b = 200^\circ$
 $b = 50^\circ$ ✓

antw ✓
rede ✓

$c = 180^\circ - 50^\circ - 50^\circ$ (\overline{LE} op reguit lyn)
 $= \frac{80}{100}^\circ$ ✓ MF

antw MF ✓
rede ✓
(6)

2.4 $3x + x = 2x + 60^\circ$ (overkant \overline{LE} $AB \parallel CD$)
 $2x = 60^\circ$
 $x = 30^\circ$ ✓

Stelling \overline{KE}
antw ✓

$y = 180 - 3(30) - 30$ (\overline{LE} op reguit lyn) ✓
 $= 60^\circ$ ✓ MF

stelling \overline{KE}
antw ✓

of $y = 180 - 60 - 2(30)$ (ke-binne \overline{LE} $AB \parallel CD$) (4)
115

Vraag 3

3.1 $x = 540^\circ - 121^\circ - 102^\circ - 105^\circ - 67^\circ$
 $= 145^\circ \checkmark$

antw $x=145^\circ$

$y = 145 - 11$
 $= 134^\circ$ (MF)

$y = 134^\circ$

$t = 143^\circ \checkmark$

$t = 143^\circ$
(3)

3.2 $2x + x + 3x + 2x + 2x = 360^\circ$ (buite \angle veelhoek = 360°)
 $10x = 360^\circ$
 $x = 36^\circ \checkmark$
 stelling \checkmark
 antw (2)

$y = 180 - 2(36^\circ)$ (\angle op request lyn)
 $= 108^\circ \checkmark$

stelling \checkmark
 antw (2)

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Vraag 4

4.1.1 $\triangle PQS \cong \triangle QRT$ (L, L, S)

Ja of enige orde ~~van~~
 orde moet korrek wees
 reël

4.1.2 $\triangle FGH \cong \triangle KJI$ (90° L, sk sy; sy)

orde korrek
 reël

4.1.3 $\triangle ABC \not\cong \triangle XYZ$

$\not\cong$
 (5)

4.2

4.2.1 EF ✓

EF ✓ (1)

4.2.2 (L, L, S) ✓

(L, L, S) ✓ (1)

4.3

4.3.1 (S, L, S) ✓

(S, L, S) ✓ (1)

4.3.2 $B = 70^\circ$ ✓

$B = 70^\circ$ ✓ (1)

4.4

4.4.1 In $\triangle ABD$ en $\triangle CBD$

$AB = BC$ (gegeve) $AB = CD$ (gegeve) ✓
 $AD = DC$ (gegeve) $AD = BC$ (gegeve) ✓
 $BD = BD$ (gemeenschappelijk) ✓
 $\therefore \triangle ABD \cong \triangle CBD$ (S, S, S) ✓

stelling Tweede
 stelling Tweede
 stelling Tweede
 orde Tweede
 (4)

+4.2 In $\triangle ABO$ en $\triangle CBO$

$AB = BC$ (gegeve) ✓
 $BO = BO$ (gemeenschappelijk) ✓
 $\hat{A}_1 = \hat{B}_2$ (verant \cong) ✓
 $\therefore \triangle ABO \cong \triangle CBO$ (S, L, S) ✓

stelling Tweede
 stelling Tweede
 stelling Tweede
 orde Tweede (4)

+4.3 Laat $\hat{O}_1 = \hat{O}_2 = x$ ✓

$\therefore x + x = 180^\circ$ (L^e op reghout (y)) ✓

$2x = 180^\circ$

$x = 90^\circ$ ✓

$\therefore BO \perp AC$

vergelyking Tweede
 antw. (2) ✓

Vraag 5

5.1
5.1.1 $\triangle ABC \cong \triangle EDF$ (syg in verhouding) orde + rede

5.1.2 $\triangle MNP \cong \triangle QRS$ (L, L, L) orde + rede (4)

5.2.1 In $\triangle ABC$ en $\triangle ADE$
 $\hat{A} = \hat{A}$ (gemeenskaplik) stelling Twee
 $\hat{D}_1 = \hat{B}$ (ooreenkl. \angle $DE \parallel BC$) stelling Twee
 $\hat{E}_1 = \hat{C}$ (ooreenkl. \angle $DE \parallel BC$ of $3\angle = 180^\circ$) stelling Twee
 $\therefore \triangle ABC \cong \triangle ADE$ (L, L, L) stelling Twee (4)

5.2.2 $\frac{AB}{AD} = \frac{BC}{DE} = \frac{AC}{AE}$ MF
 Skaalfaktor $\frac{30+x}{30} = \frac{21}{14} = \frac{y+15}{y}$ ($\cong \triangle$)
 Verhouding (almoesliks) Verhouding + rede

$(30+x) \cdot 14 = 630$ ✓
 $x+30 = 45$
 $x = 15$ ✓
 vergelyking
 antw ✓

$21y = 14(y+15)$ ✓
 $21y = 14y + 210$
 $7y = 210$
 $y = 30$ ✓
 vergelyking
 antw ✓ (6)

Stegs antwoorde: $\boxed{\frac{4}{6}}$

1/4/

Vraag 6

6.1.1 $2x + 2y + 90 = 180$ (binne $\angle \Delta = 180$)

6.1.1 $2x + 2y = 90$ ✓
 $x + y = 45$ ✓

vergel. + red
 $2x + 2y = 90$
vereenvoudig
(3)

6.1.2 $\hat{O}_1 = 180 - 45$ (binne $\angle \Delta = 180$)
 $= 135$ mf.

antw ✓
red ✓
(2)

6.2 $VX = 48$ (Lang hoeklyn vlieër halveer korte hoeklyn) antw red

$UY^2 = 25^2 - 24^2$ (Pyth)
 $UY = 7$ ✓

Stelling twee
vleë antw

$WX^2 = 40^2 + 24^2$ (Pyth)
 $WX = 8\sqrt{34}$
46,65

Stelling twee
antw ✓

(6)

|||

Vraag 7

7.1.1 a) Omtrek = $2(25) + 2(120)$
 $= 290$ mm

instelling in formule
antw

b) opp = $b \times L h$ 25
 $= 120 \times 15$
 $= 1800$ mm²
Nie MF

instelling in formule
antw

(4)

$$\begin{aligned}
 7.2a) \quad O_{\text{mbrek}} &= \frac{1}{2}(2\pi r) + 30 \\
 &= \frac{1}{2}(2 \times \pi \times 5) + 30 \\
 &= 45,71 \text{ cm} \checkmark
 \end{aligned}$$

$$\begin{aligned}
 &\frac{1}{2}(2\pi r) \\
 &30 \\
 &45,71 \checkmark \quad (3)
 \end{aligned}$$

$$\begin{aligned}
 b) \quad O_{\text{pp}} &= \frac{1}{2}\pi r^2 + sy^2 \\
 &= \frac{1}{2} \times \pi \times 5^2 + 10^2 \\
 &= 39,27 + 100 \\
 &= 139,27 \text{ cm}^2 \checkmark
 \end{aligned}$$

$$\begin{aligned}
 &\frac{1}{2}\pi r^2 + sy^2 \\
 &\text{instelling} \\
 &39,27 + 100 \\
 &\text{antw} \checkmark \quad (5)
 \end{aligned}$$

7.2

7.2.1 Ruit

(1)

$$\begin{aligned}
 7.2.2 \quad O_{\text{pp}} &= b \times l \times h \\
 483 &= 21 \times h \\
 h &= 23 \text{ cm}
 \end{aligned}$$

$$\begin{aligned}
 &\text{formule} \\
 &\text{instelling} \\
 &\text{antw} \checkmark \quad (3) \\
 &116/
 \end{aligned}$$

[Totaal: 100]