

Wiskunde Gr.8 Toets 4

60 minute

50 punte

Vraag 1: [14]

1.1 Voltooi die volgende:

(3)

- (a) Supplementêre hoeke het 'n som van 180° ✓
- (b) 'n Stomphoek lê tussen 90° en 180° ✓
- (c) Regoorstaande hoeke is ewe groot / gelyk ✓

1.2 Bestudeer die diagram en skryf die volgende neer in terme van x , y , p en/of k :

(5)

(a) 'n paar verwissellende binnehoeke.

x en p ✓

(b) 'n paar ooreenkomstige hoeke.

x en k ✓

(c) 'n paar ko-binnehoeke.

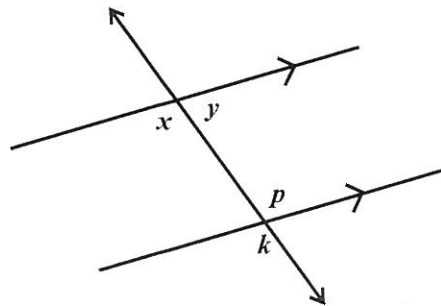
y en p ✓

(d) 'n paar regoorstaande hoeke.

p en k ✓

(e) 'n paar aangrensende hoeke op 'n reguitlyn.

x en y ✓



1.3 $AB \parallel CD$ met snylyn MP en $MP \parallel DN$ sodat

$$\hat{M}_1 = 92^\circ.$$

Bereken $\hat{PDN}$. Toon alle berekeninge en gee volledige redes.

$$92^\circ = \hat{m}_1 = \hat{p}_3 \quad [\text{Ooreenst. } \angle^e; AB \parallel CD]$$

$$92^\circ = \hat{p}_3 = \hat{p}_1 \quad [\text{regoorst. } \angle^e]$$

$$\hat{p}_1 + \hat{PDN} = 180^\circ \quad [\text{ko-binn. } \angle^e; MP \parallel DN]$$

$$\therefore \hat{PDN} = 88^\circ$$

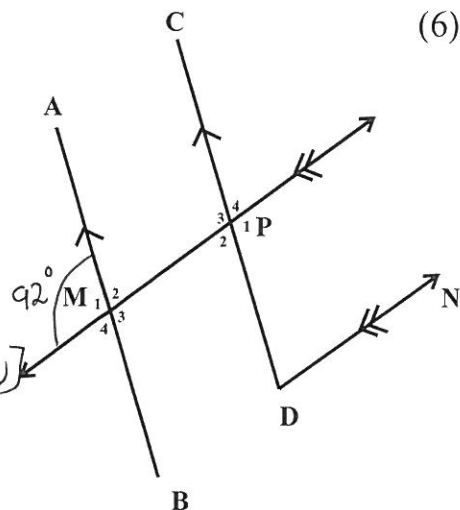
of

$$\hat{m}_1 = \hat{m}_3 = 92^\circ \quad [\text{regoorst. } \angle^e]$$

$$\hat{m}_3 + \hat{p}_2 = 180^\circ \quad [\text{ko-binn. } \angle^e; AB \parallel CD]$$

$$\therefore \hat{p}_2 = 88^\circ$$

$$\therefore \hat{p}_2 = \hat{PDN} = 88^\circ \quad [\text{verw. } \angle^e; MP \parallel DN]$$



(6)

Vraag 2: [14]

2.1 Voltooi die volgende:

(2)

(a) Die som van die binnehoeke van 'n driehoek is supplementêr / saam 180°

(b) Die buitehoek van 'n driehoek is gelyk aan die som van die teenoorstaande binnehoeke

2.2 Verduidelik die verskil tussen 'n gelykbenige driehoek en 'n gelyksydige driehoek. Gee twee eienskappe van elk om die verskil te illustreer.

(4)

Gelykbenige Δ :

* 2 sye ewe lank ✓

* $\angle^e$ teenoor gelyk ✓

sy =

Gelyksydige Δ :

* al 3 sye ewe lank ✓

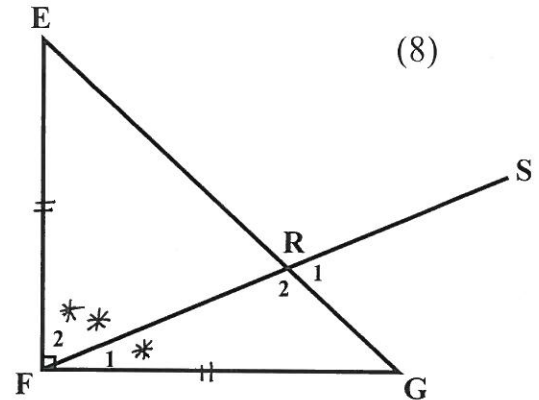
* al 3 hoeke gelyk ✓

aan 60° elk. ✓

2.3 $\triangle EFG$ met $EF = FG$ en $EF \perp FG$ word gegee.

$$\hat{F}_2 = 2\hat{F}_1$$

- (a) Beskryf watter tipe driehoek EFG is in woorde.
- (b) Bereken $\hat{R}_1$. Toon alle berekeninge en gee volledige redes.



(a) $\triangle EFG$ is 'n gelykbenige $\triangle$ ✓

(b) $\hat{E} = \hat{G}$ ✓ [$\angle^e$ teenoor gelyke sye]

maar $\hat{E} + \hat{G} = 90^\circ$ [binne $\angle^e$ van $\triangle$]

$$\therefore \hat{E} = \hat{G} = 45^\circ$$

$\hat{F}_1 + \hat{F}_2 = 90^\circ$ ✓ [komplementêre $\angle$ gegee]

$$\therefore \hat{F}_1 + 2\hat{F}_1 = 90^\circ$$

$$\therefore 3\hat{F}_1 = 90^\circ$$

$$\therefore \hat{F}_1 = \frac{90^\circ}{3} = 30^\circ$$

maar $\hat{R}_1 = \hat{F}_1 + \hat{G}$ ✓ [buite $\angle$ van $\triangle$]

$$\therefore \hat{R}_1 = 30^\circ + 45^\circ = 75^\circ$$

Vraag 3: [11]

3.1 Voltooi:

Volgens die stelling van Pythagoras is die vierkant op die skuinssy van 'n

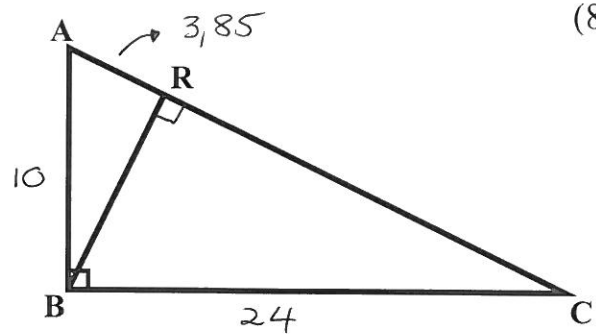
(3)

reghoekige driehoek gelyk aan die som
van die vierkante op die twee reghoeksye.

3.2 In reghoekige ΔABC is $AB = 10$ cm en $BC = 24$ cm.

BR word getrek met $BR \perp AC$ sodat $AR = 3,85$ cm. Bereken:

(8)



(a) In ΔABC :

$$AC^2 = AB^2 + BC^2 \quad \checkmark \quad [\text{Pythagoras}]$$

$$AC^2 = 10^2 + 24^2$$

$$= 100 + 576$$

$$AC^2 = 676 \quad \checkmark$$

$$\therefore AC = 26 \quad \checkmark \text{ cm}$$

(b) In ΔABR :

$$AB^2 = AR^2 + BR^2 \quad [\text{Pythagoras}]$$

$$(10)^2 = (3,85)^2 + BR^2$$

$$100 = 14,8225 + BR^2$$

$$\therefore BR^2 = 100 - 14,8225$$

$$BR^2 = 85,1775$$

$$\therefore BR = 9,2291 \dots \quad \checkmark$$

$$\therefore BR \approx 9,23 \quad \checkmark \text{ cm}$$

Vraag 4: [11]

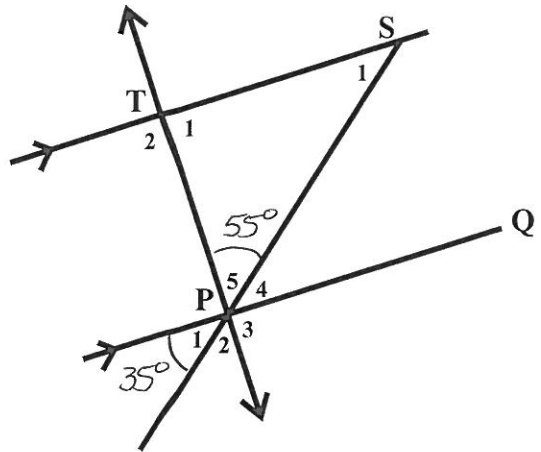
TS // PQ met $\hat{P}_1 = 35^\circ$ en $\hat{P}_5 = 55^\circ$.

4.1 Bereken, met redes:

(a) $\hat{P}_4$

(b) $\hat{S}_1$

(c) $\hat{T}_1$



4.2 Bereken die oppervlakte van ΔTSP as
TS = 8 cm, TP = 6 cm en PS = 10 cm.

4.1. (a) $\hat{P}_4 = \hat{P}_1 = 35^\circ \checkmark$ [regoorstaande $\checkmark$ $\angle$ 'e]

(b) $\hat{S}_1 = \hat{P}_4 = 35^\circ \checkmark$ [verw. $\angle$ 'e; $TS \parallel PQ$]

(c) $\hat{T}_1 + \hat{S}_1 + \hat{P}_5 = 180^\circ$ [binne $\checkmark$ $\angle$ 'e van Δ]

$\therefore \hat{T}_1 + 35^\circ + 55^\circ = 180^\circ$

$\therefore \hat{T}_1 = 180^\circ - 35^\circ - 55^\circ$

$\therefore \hat{T}_1 = 90^\circ \checkmark$

4.2 opp. $\Delta TSP = \frac{1}{2} b \times h \checkmark$

$= \frac{1}{2} (TS)(TP)$

$= \frac{1}{2} (8)(6) \checkmark$

$= 24 \checkmark \text{ cm}^2 \checkmark$

$\begin{array}{l} TS \perp TP \\ \hookrightarrow \hat{T}_1 = 90^\circ \end{array}$