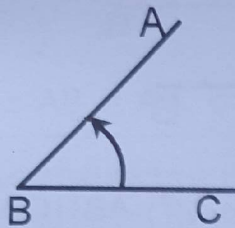


MODULE 16: Meetkunde:

Lyne, Hoeke en Driehoeke

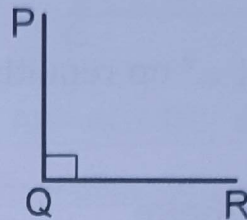
Verskillende soorte hoeke (Hersiening)

- **Skerphoek**



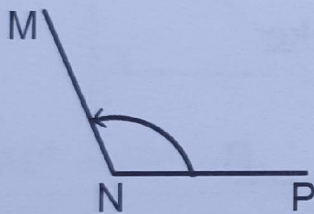
'n Hoek wat groter is as 0° maar kleiner as 90° .

- **Regte hoek**



'n Hoek wat gelyk is aan 90° .
($\hat{P}Q\hat{R} = 90^\circ$)

- **Stomphoek**



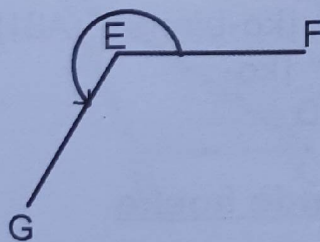
'n Hoek wat groter is as 90° maar kleiner as 180° .

- **Gestrekte hoek**



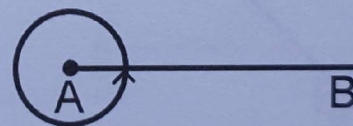
'n Hoek wat gelyk is aan 180° .
($\hat{K}L\hat{M} = 180^\circ$)

- **Inspringende hoek**



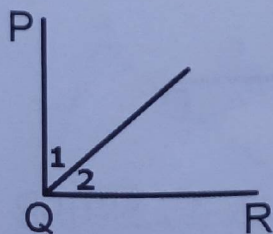
'n Hoek wat groter is as 180° maar kleiner as 360° .

- **Omwenteling**



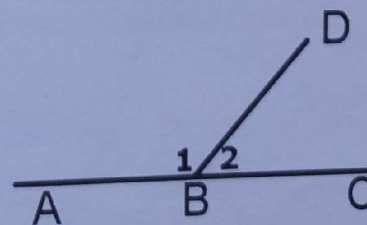
'n Hoek wat gelyk is aan 360° .
($\hat{A} = 360^\circ$)

- **Komplementêre hoeke**



Hoeke wat saam gelyk is aan 90° .
($\hat{Q}_1 + \hat{Q}_2 = 90^\circ$)

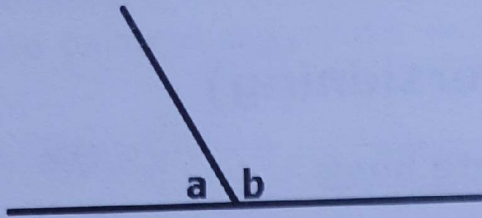
- **Supplementêre hoeke**



Hoeke wat saam gelyk is aan 180° . ($\hat{B}_1 + \hat{B}_2 = 180^\circ$)

Eienskappe van hoeke

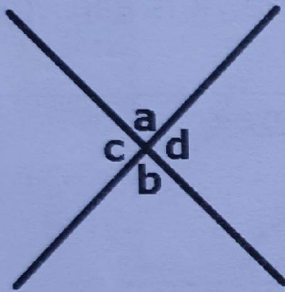
Hoeke op 'n reguitlyn



$$a + b = 180^\circ \quad | \angle^e \text{ op reguitlyn}$$

$$\therefore a = 180^\circ - b$$

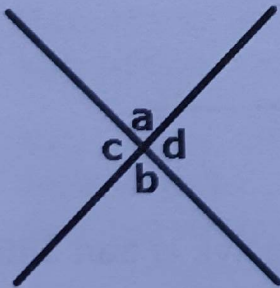
Regoorstaande hoeke



$$a = b \quad | \text{regoorst. } \angle^e$$

$$\text{en } c = d \quad | \text{regoorst. } \angle^e$$

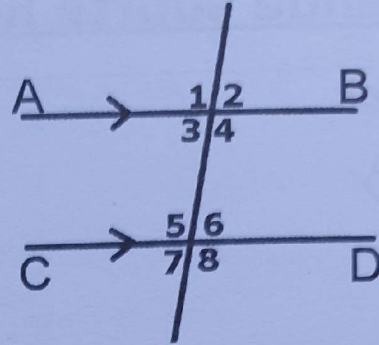
Omwenteling



$$a + b + c + d = 360^\circ \quad | \text{omwenteling}$$

Ewewydige lyne:

• Ooreenkomstige hoeke



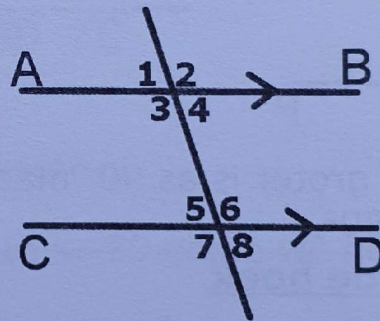
$$\hat{1} = \hat{5} \quad | \text{ooreenk. } \angle^e; AB \parallel CD$$

$$\hat{2} = \hat{6} \quad | \text{ooreenk. } \angle^e; AB \parallel CD$$

$$\hat{4} = \hat{8} \quad | \text{ooreenk. } \angle^e; AB \parallel CD$$

$$\hat{3} = \hat{7} \quad | \text{ooreenk. } \angle^e; AB \parallel CD$$

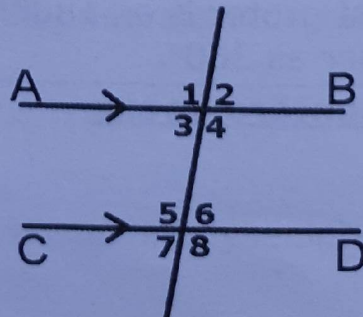
• Ko-binnehoeke



$$\hat{3} + \hat{5} = 180^\circ \quad | \text{ko-binne } \angle^e; AB \parallel CD$$

$$\hat{4} + \hat{6} = 180^\circ \quad | \text{ko-binne } \angle^e; AB \parallel CD$$

• Verwisselende hoeke



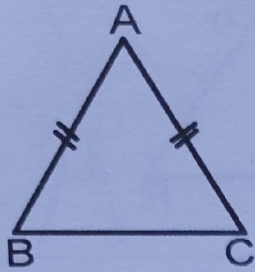
$$\hat{3} = \hat{6} \quad | \text{verw. } \angle^e; AB \parallel CD$$

$$\hat{4} = \hat{5} \quad | \text{verw. } \angle^e; AB \parallel CD$$

Driehoeke

Gelykbenige driehoek

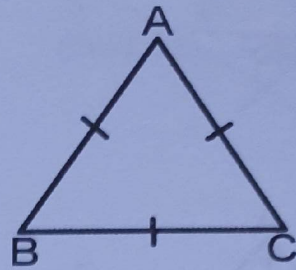
(Driehoek met 2 sye ewe lank)



As $AB = AC$, dan $\hat{B} = \hat{C}$

Gelyksydige driehoek

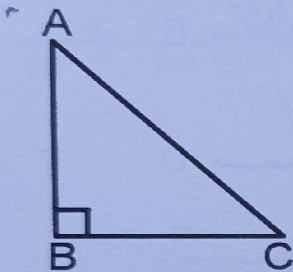
(Driehoek met al 3 sye ewe lank)



As $AB=AC=BC$, dan $\hat{A} = \hat{B} = \hat{C} = 60^\circ$

Reghoekige driehoek

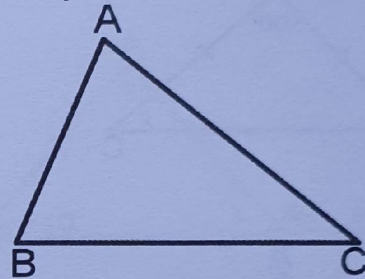
(Driehoek met 1 hoek = 90°)



$AC^2 = AB^2 + BC^2$ (Pythagoras)

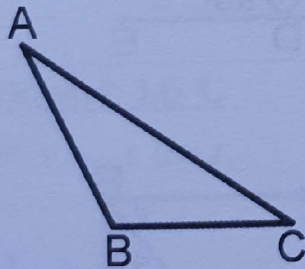
Skerphoekige driehoek

(Driehoek met al 3 hoeke kleiner as 90°)

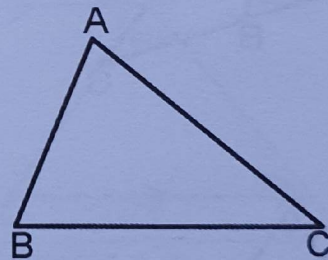


Stomphoekige driehoek

(Driehoek met 1 hoek groter as 90°)



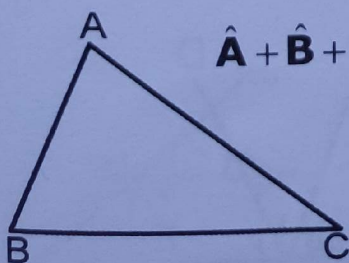
NB!!



$$\begin{aligned} \hat{A} &= \text{B}\hat{A}\text{C} & \hat{B} &= \text{A}\hat{B}\text{C} \\ \hat{C} &= \text{A}\hat{C}\text{B} \end{aligned}$$

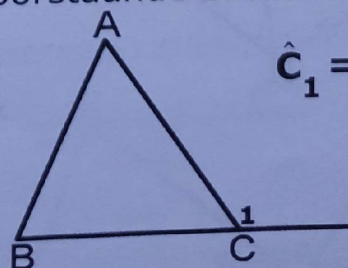
Eienskappe van driehoeke

Som van binnehoeke van $\Delta = 180^\circ$



$$\hat{A} + \hat{B} + \hat{C} = 180^\circ$$

Buitehoek van $\Delta =$ som van teenoorstaande binnehoeke

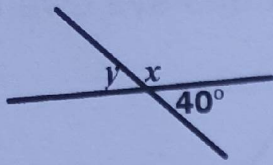


$$\hat{C}_1 = \hat{A} + \hat{B}$$

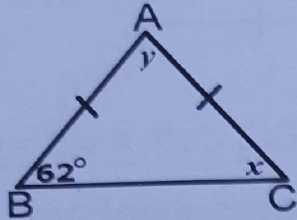
Werkkaart 16 A

Bepaal die waarde van x , y , z en t :

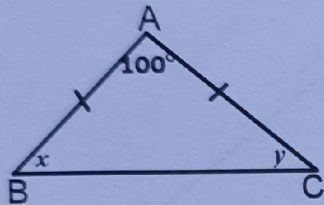
1.



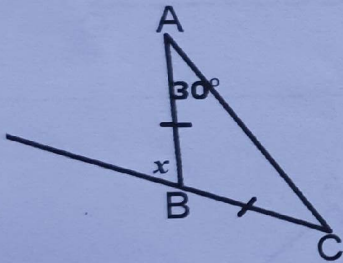
2.



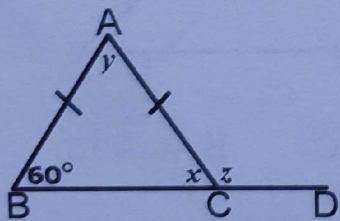
3.



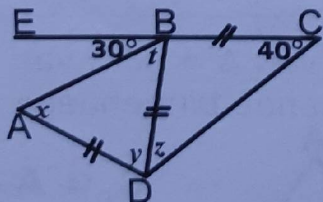
4.



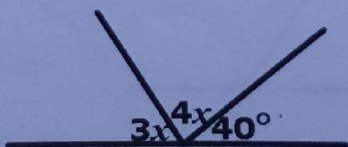
5.



6.

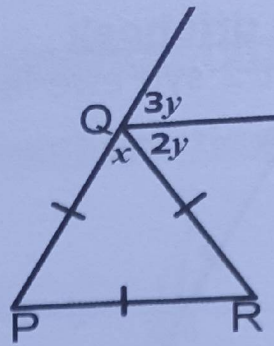


7.



Werkkaart 16 A

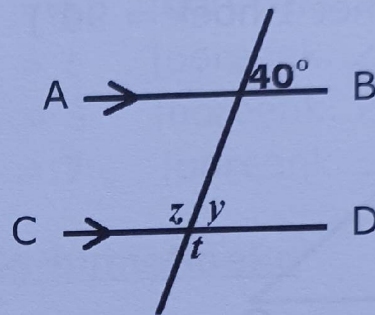
8.



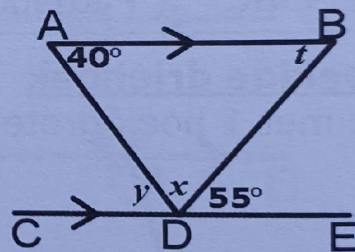
Werkkaart 16 B

Bepaal x , y , z en t :

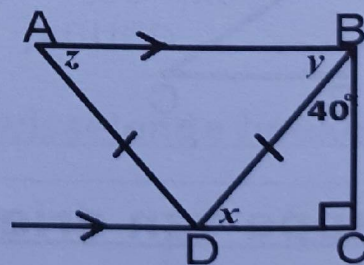
1.



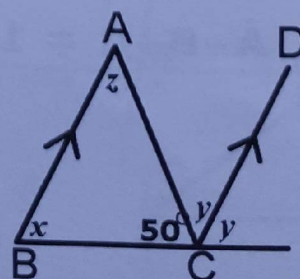
2.



3.

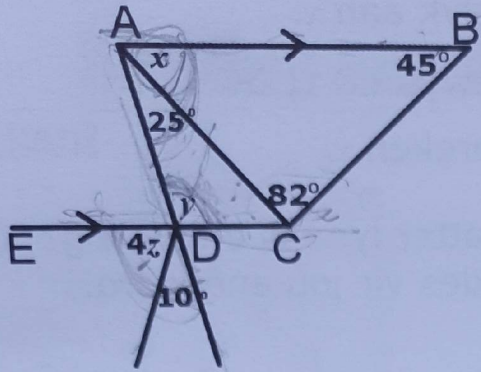


4.

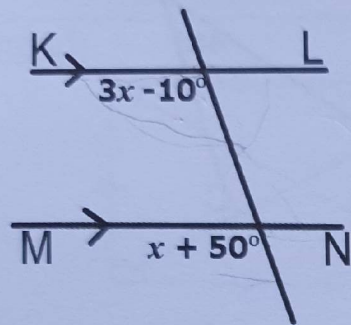


Werkkaart 16 B

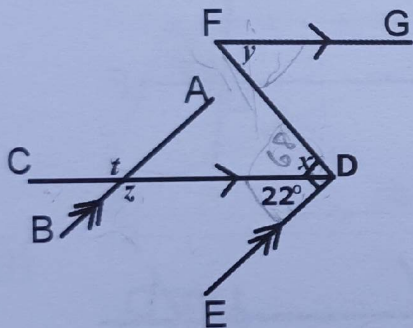
5.



6.



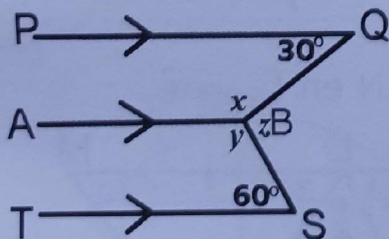
7.



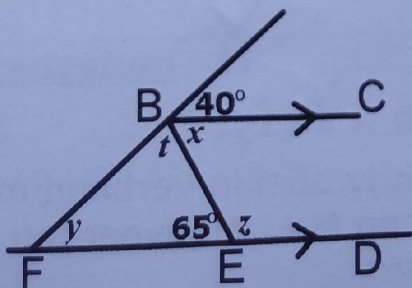
Werkkaart 16 C

Bepaal x , y , z en t :

1.

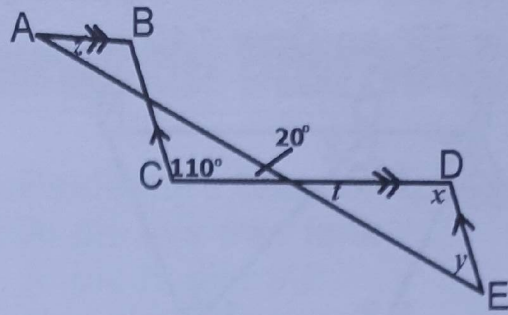


2.

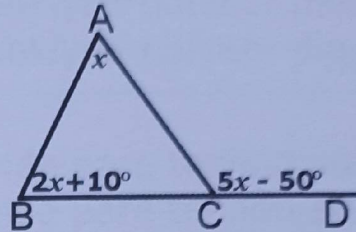


Werkkaart 16 C

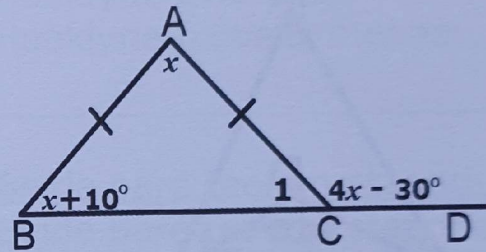
3.



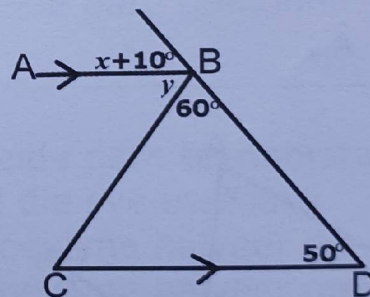
4.



5.

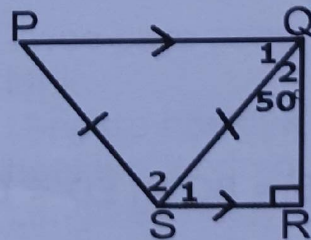


6.

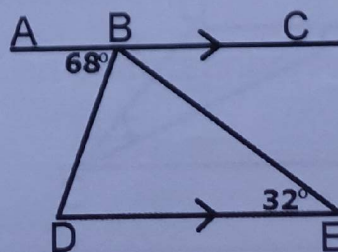


Werkkaart 16 D

1. Bereken \hat{P} :

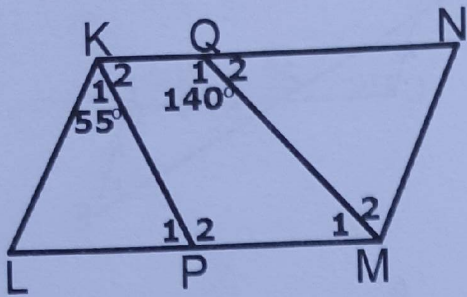


2. Bereken $\hat{D\hat{B}E}$:



Werkkaart 16 D

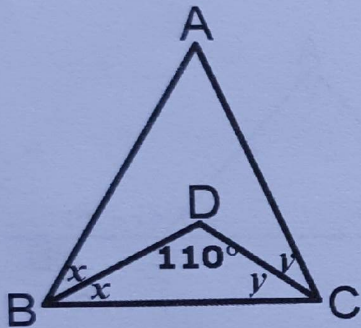
3. $KN \parallel LM$, $KL = LP$ en $QN = QM$.
 $\hat{K}_1 = 55^\circ$ en $\hat{Q}_1 = 140^\circ$.



Bereken:

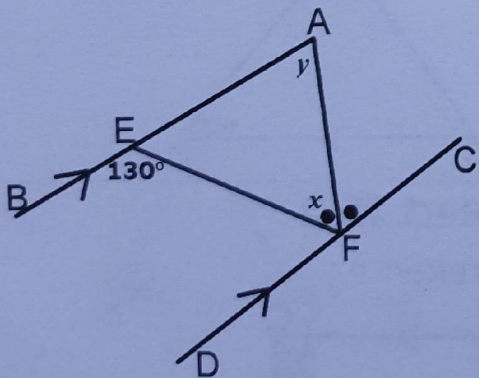
- 3.1 \hat{L}
 3.2 \hat{N}

4.



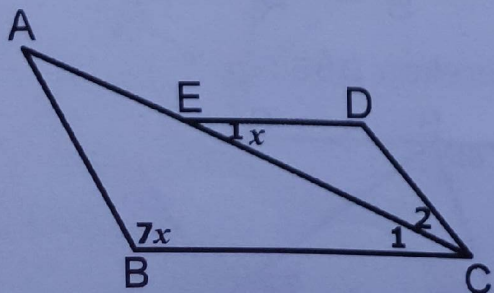
Bereken \hat{A} :

5.



Bereken x en y .

6. $AB \parallel CD$, $AB = BC$ en $ED = DC$



Werkkaart 16 D

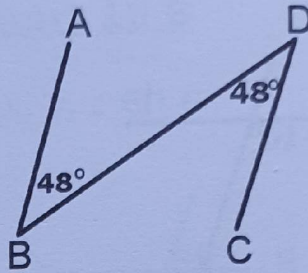
- 6.1 Noem, met redes, nog 3 hoeke gelyk aan x .

- 6.2 Bewys $ED \parallel BC$.

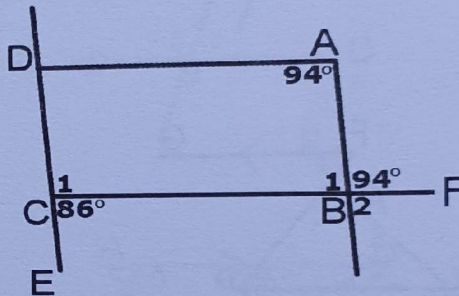
- 6.3 Bereken x .

7. Watter lyne is ewewydig? Gee redes vir jou antwoord.

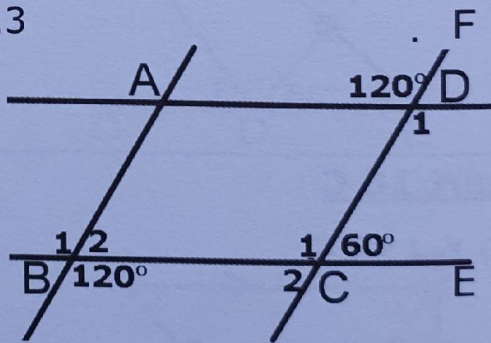
7.1



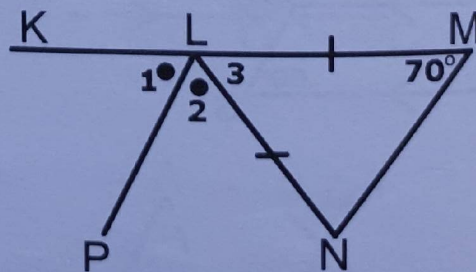
7.2



7.3



8. $LM = LN$ en $\hat{L}_1 = \hat{L}_2$



- 8.1 Bereken \hat{N} en \hat{L}_2 .

- 8.2 Wat kan jy aflei in verband met lyne LP en MN. Motiveer jou antwoord.