

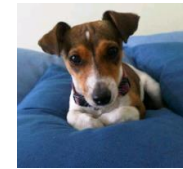
Gelykvormige driehoeke

Twee driehoeke is gelykvormig indien die vorm dieselfde is maar die grootte verskil.

⇒ Die hoeke van die driehoek is gelyk en die ooreenstemende sye se verhouding is dieselfde.

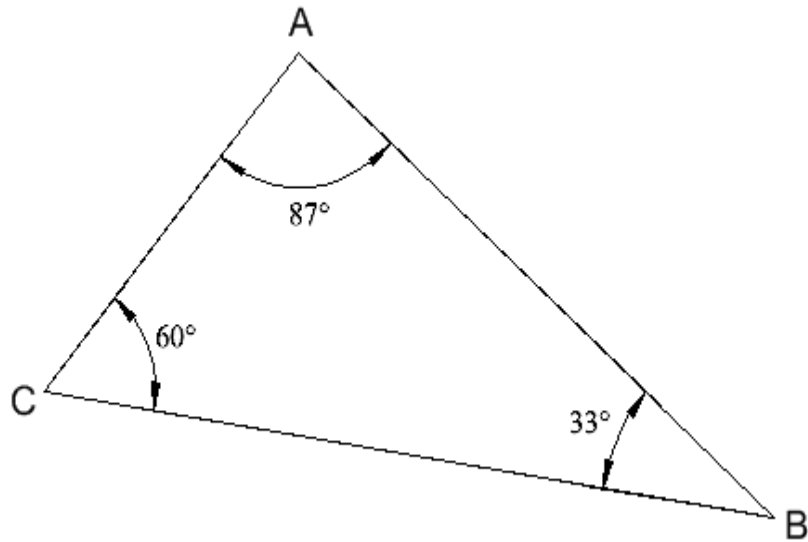
⇒ Die simbool \sim beteken “is gelykvormig aan”.

Voorbeeld:

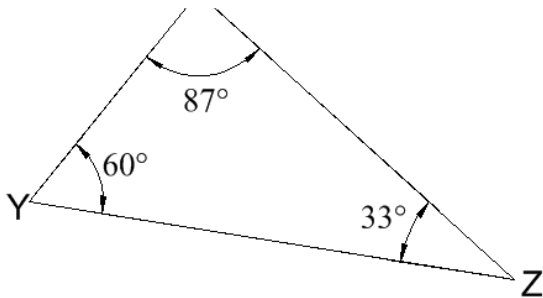


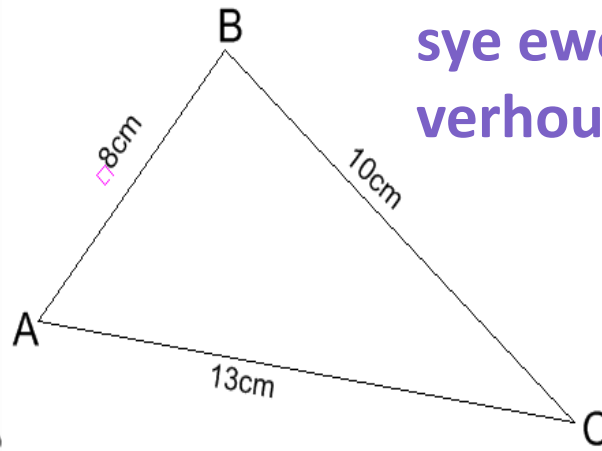
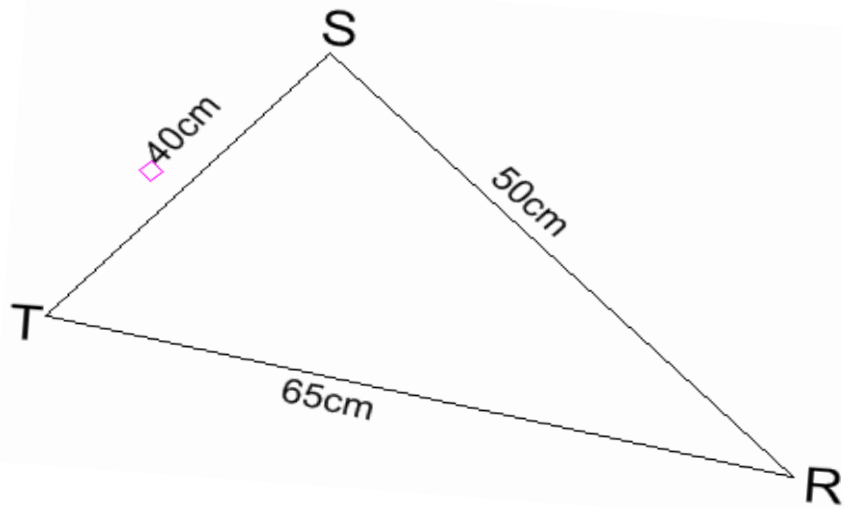
Die vorm van die foto's bly dieselfde, slegs die grootte verskil.

Voorwaardes vir gelykvormigheid:



\Rightarrow 3 hoeke is gelyk.
(H,H,H)





⇒ Ooreenstemmende sye eweredig (in verhouding)

In $\triangle SRT$ en $\triangle BCA$:

$$\frac{RT}{CA} = \frac{SR}{BC} = \frac{ST}{BA}$$

$$\therefore \frac{65}{13} = \frac{50}{10} = \frac{40}{8}$$

∴ Die verhouding is $\frac{5}{1} = 5$

∴ $\triangle SRT \parallel\parallel \triangle BCA$ (Ooreenstemmende sye is gelyk)

NB ⇒

Volgorde is belangrik!!!

$\triangle ABC$ is NIE $\parallel\parallel \triangle RST$ nie.

Voorbeelde:

1. Die figuur kruis AD en BC by E, met $AB \parallel CD$.

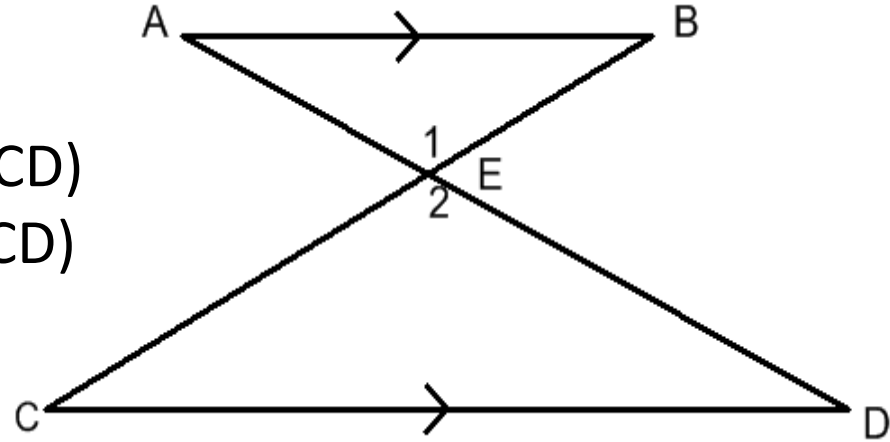
Bewys dat $\triangle ABE \cong \triangle DCE$.

Oplossing:

In $\triangle ABE$ en $\triangle DCE$:

1. $\angle A = \angle D$ (Verwisselende \angle 'e, $AB \parallel CD$)
2. $\angle B = \angle C$ (Verwisselende \angle 'e, $AB \parallel CD$)
3. $\angle E_1 = \angle E_2$ (Regoorstaande \angle 'e)

$\therefore \triangle ABE \cong \triangle DCE$ (H,H,H).



2. Bewys dat $\triangle ABC \parallel \triangle DEF$.

Oplossing:

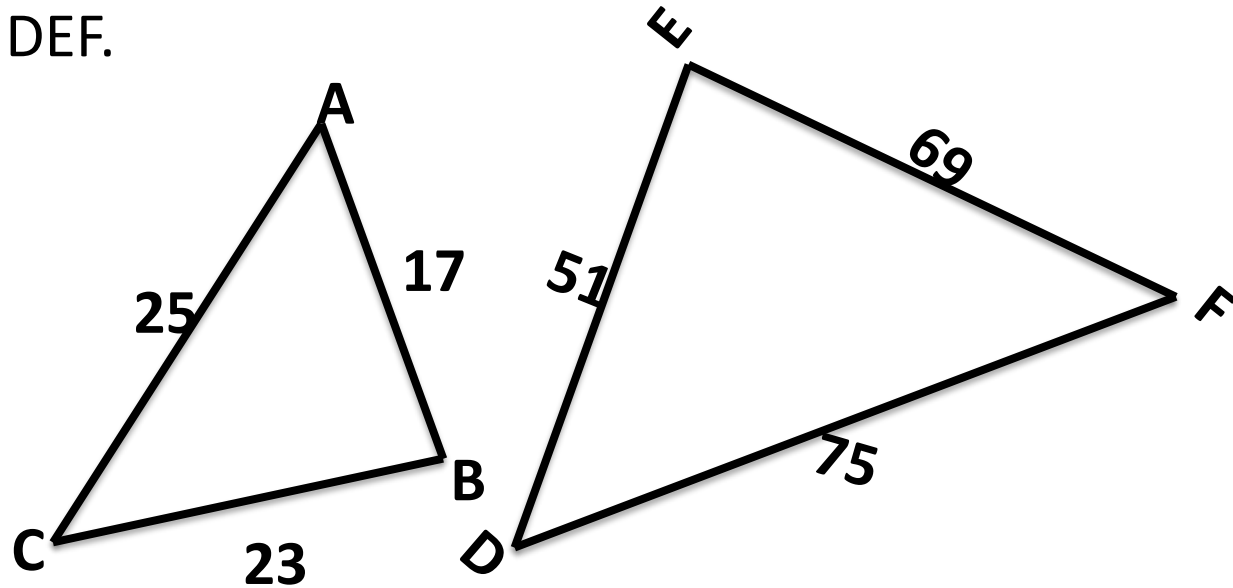
In $\triangle ABC$ en $\triangle DEF$:

$$\frac{AC}{DF} = \frac{BC}{EF} = \frac{AB}{DE}$$

$$\frac{25}{75} = \frac{23}{69} = \frac{17}{51}$$

Die verhouding is $\frac{1}{3}$

$\therefore \triangle ABC \parallel \triangle DEF$ (Ooreenstemmende sye eweredig)



3. $\triangle ABC \parallel \triangle EFD$. Berken dan vir x en y .

Oplossing:

$$\therefore \frac{AB}{EF} = \frac{BC}{FD} = \frac{AC}{ED} \quad (\triangle ABC \parallel \triangle EFD)$$

$$\therefore \frac{7}{y} = \frac{8}{x} = \frac{3}{6}$$

$$\therefore \frac{8}{x} = \frac{3}{6}$$

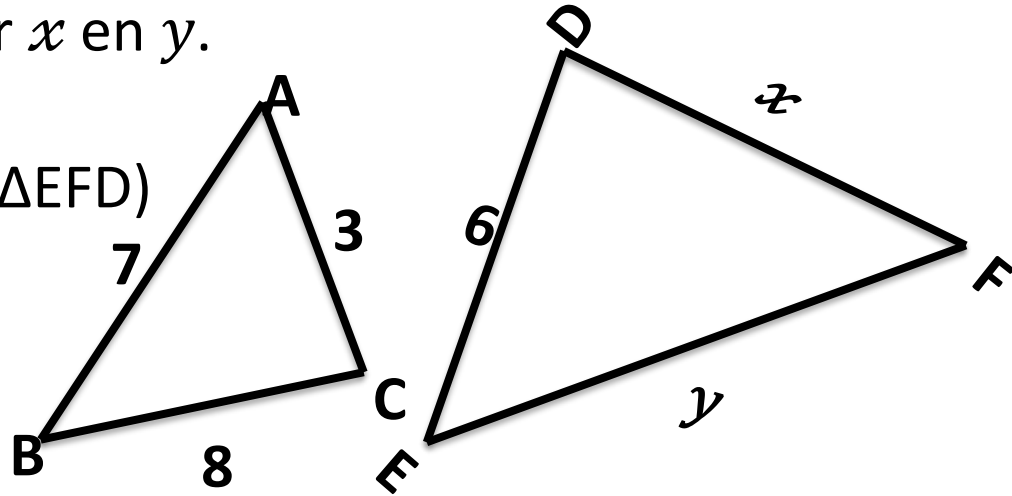
$$48 = 3x$$

$$16 = x$$

$$\therefore \frac{7}{y} = \frac{3}{6}$$

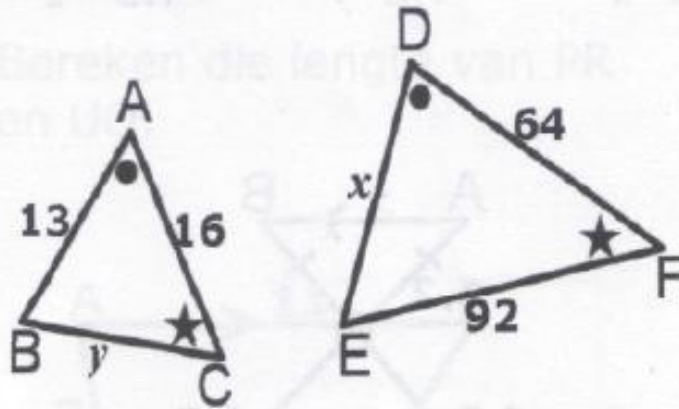
$$42 = 3y$$

$$14 = y$$



Oefening: Klaswerk

1.



1.1 Bewys $\Delta ABC \parallel \Delta DEF$.

1.2 Bereken x en y .

1.1 In ΔABC en ΔDEF :

$$\hat{A} = \hat{D} \quad | \text{gegees}$$

$$\hat{C} = \hat{F} \quad | \text{gegees}$$

$$\therefore \Delta ABC \parallel \Delta DEF \quad | \angle \angle \angle$$

$$1.2 \quad \frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF} \quad | \Delta ABC \parallel \Delta DEF$$

$$\frac{13}{x} = \frac{y}{92} = \frac{16}{64}$$

$$\therefore \frac{13}{x} = \frac{16}{64}$$

$$832 = 16x$$

$$52 = x$$

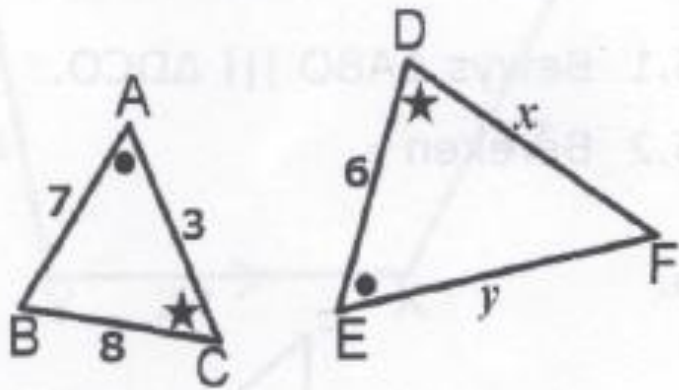
en

$$\frac{y}{92} = \frac{16}{64}$$

$$64y = 1472$$

$$y = 23$$

2.



$\Delta ABC \sim \Delta EFD$. Bereken x en y .

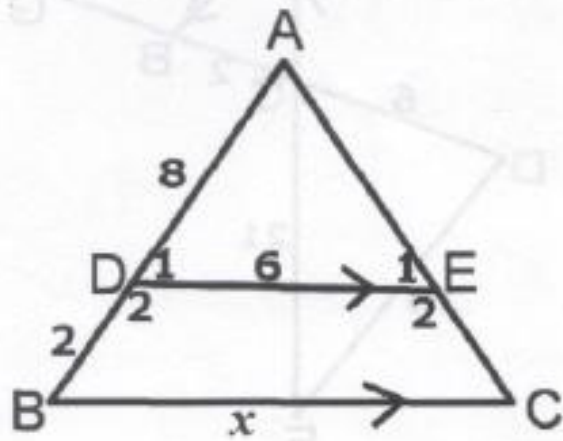
2. $\Delta ABC \sim \Delta EFD$ | gegee

$$\therefore \frac{AB}{EF} = \frac{BC}{FD} = \frac{AC}{ED} \quad | \Delta ABC \sim \Delta EFD$$
$$\therefore \frac{7}{y} = \frac{8}{x} = \frac{3}{6}$$
$$\therefore \frac{8}{x} = \frac{3}{6}$$
$$48 = 3x$$
$$16 = x$$

en $\frac{7}{y} = \frac{3}{6}$

$$42 = 3y$$
$$14 = y$$

3.



- 3.1 Bewys $\triangle ABC \parallel \triangle ADE$.
 3.2 Bereken x .

3.1 In $\triangle ABC$ en $\triangle ADE$:

$$\hat{A} = \hat{A} \quad | \text{gemeenskaplik}$$

$$\hat{D}_1 = \hat{B} \quad | \text{ooreenk. } \angle^\circ; DE \parallel BC$$

$$\therefore \triangle ABC \parallel \triangle ADE \quad | \angle \angle \angle$$

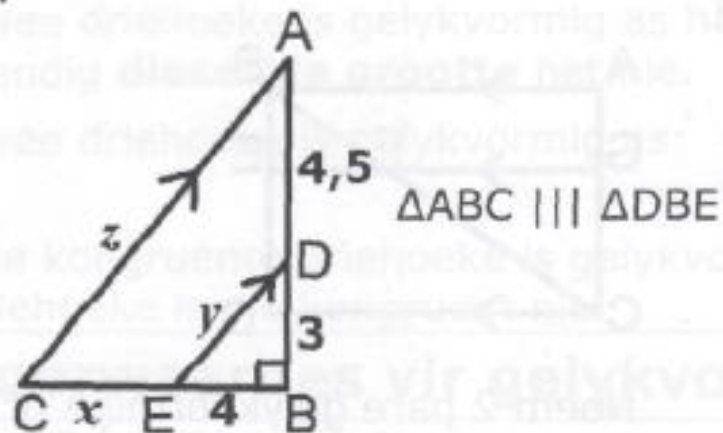
3.2 $\frac{AB}{AD} = \frac{BC}{DE} = \frac{AC}{AE} \quad | \triangle ABC \parallel \triangle ADE$

$$\frac{10}{8} = \frac{x}{6}$$

$$60 = 8x$$

$$\therefore x = 7,5$$

4.



Bereken die waarde van:

4.1 x

4.2 y

4.3 z

4.1 $\Delta ABC \parallel \Delta DBE$ | gegee

$$\frac{AB}{DB} = \frac{BC}{BE} = \frac{AC}{DE} \quad | \Delta ABC \parallel \Delta DBE$$

$$\frac{7,5}{3} = \frac{4+x}{4} = \frac{z}{y}$$

$$\therefore 30 = 3(4+x)$$

$$10 = 4+x$$

$$6 = x$$

4.2 $y^2 = 4^2 + 3^2$ | pyth.

$$= 16 + 9$$

$$= 25$$

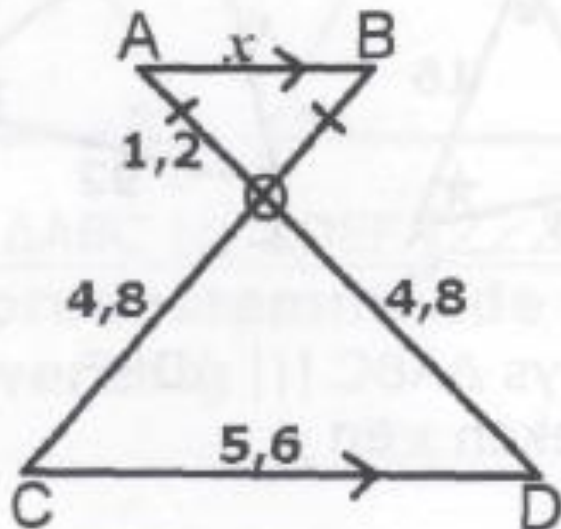
$$y = 5$$

4.3 $\frac{7,5}{3} = \frac{z}{5}$

$$37,5 = 3z$$

$$12,5 = z$$

5.



5.1 Bewys $\Delta ABO \parallel \Delta DCO$.

5.2 Bereken x .

5.1 In ΔABO en ΔDCO :

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

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

$$\therefore \Delta ABO \parallel \Delta DCO \quad | \angle \angle \angle$$

$$5.2 \quad \frac{AB}{DC} = \frac{BO}{CO} = \frac{AO}{DO} \quad | \Delta ABO \parallel \Delta DCO$$

$$\frac{x}{5,6} = \frac{1,2}{4,8} = \frac{1,2}{4,8}$$

$$\therefore 4,8x = 6,72$$

$$x = 1,4$$

Huiswerk:

Oef 12.5 bl 142

Als.

Oef 12.5 bl 142.

1.1. In $\triangle KLM$ en $\triangle PNO$:

1. $\angle K = \angle P$ (gegeve)
 2. $\angle L = \angle N$ (gegeve)
 3. $\angle M = \angle O$ (Som van $\angle = 180^\circ$)
- $\therefore \triangle KLM \parallel \triangle PNO$ (H;H;H)

1.2. $\frac{OP}{Km} = \frac{NP}{LK}$ ($\triangle KLM \parallel \triangle PNO$)

$$OP = 12 \times \frac{12}{15} = 9,6 \text{ cm}$$

$$\frac{LM}{NO} = \frac{LK}{NP}$$
$$\frac{LM}{7,2} = \frac{15}{12}$$
$$LM = 9 \text{ cm.}$$

2.1. In $\triangle ABC$ en $\triangle RST$:

$$\therefore \frac{AB}{RS} = \frac{BC}{ST} = \frac{AC}{RT}$$

$$\therefore \frac{8}{4,8} = \frac{7,5}{4,5} = \frac{10}{6}$$
$$\therefore \frac{5}{3} = \frac{5}{3} = \frac{5}{3}$$

\therefore Die verhouding is $\frac{5}{3}$

$\therefore \triangle ABC \parallel \triangle RST$ (ooreenstemmende hoekes is gelyk).

$$2.2. \quad \angle A = \angle B = 48^\circ \quad (\triangle ABC \parallel \triangle BST)$$

$$\angle S = 80^\circ \quad (\text{Binne te v. } \Delta)$$

$$3.1. \quad \angle M = 180^\circ - (60^\circ + 70^\circ)$$

$$= 50^\circ \quad R: \text{Som v. binne te v. } \Delta)$$

3.2. In $\triangle PQR$ en $\triangle MST$:

$$1. \quad \hat{P} = \hat{M} \quad (\text{Bewys in 3.1})$$

$$2. \quad \hat{Q} = \hat{S} \quad (\text{gegee})$$

$$3. \quad \hat{R} = \hat{T} \quad (\text{gegee})$$

$$\therefore \triangle PQR \parallel \triangle MST \quad (\text{HHH})$$

$$3.3. \quad \frac{PQ}{MS} = \frac{QR}{ST} = \frac{PR}{MT} \quad (\triangle PQR \parallel \triangle MST)$$

$$\therefore \frac{7,5}{4,5} = \frac{6,4}{ST} = \frac{PR}{4,8}$$

$$\therefore \frac{7,5}{4,5} = \frac{6,4}{ST}$$

$$28,8 = 7,5 \cdot ST$$

$$ST = 3,84 \text{ cm}$$

$$\therefore \frac{PR}{4,8} = \frac{7,5}{4,5}$$

$$\frac{PR}{4,8} = \frac{5}{3}$$

$$24 = 3PR$$

$$PR = 8 \text{ cm}$$