



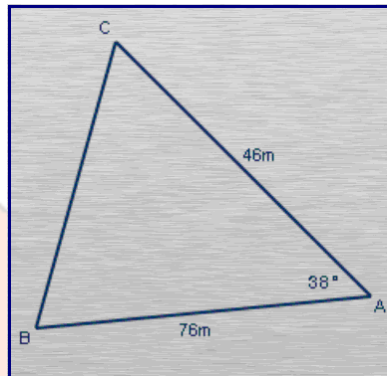
# CAMI Wiskunde: Graad 11

## GRAAD 11 Sinus-, cosinus- en oppervlakte-reël

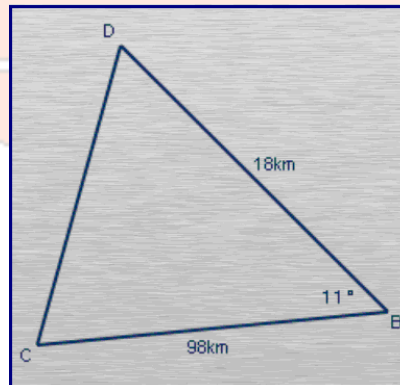
### 11.7 Oppervlakte-reël

#### 1. Oppervlakte-reël

(a) Bereken die oppervlakte van  $\triangle ABC$ .



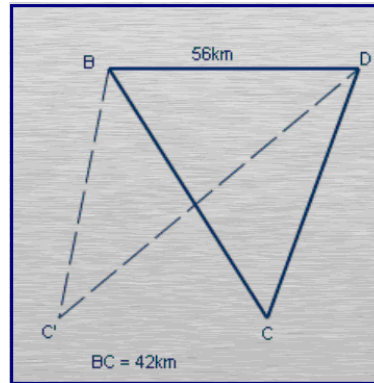
(b) Bereken die oppervlakte van  $\triangle BCD$ .





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(c) Bereken die moontlike waardes van  $\hat{B}$  indien die oppervlakte van  $\triangle BCD = 149 \text{ km}^2$ .



(d) Bereken die oppervlakte van  $\triangle FGH$  as  $\tan \hat{F} = 3.271$ ,  $FG = 82 \text{ cm}$  en  $FH = 83 \text{ cm}$ .

(e) Bereken die lengte van  $DE$  as die oppervlakte van  $\triangle DEF = 623 \text{ m}^2$ ,  $DF = 28 \text{ m}$  en  $\hat{D} = 63^\circ$



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## MEMO

(Antwoorde korrek tot twee desimale plekke)

### 1. Oppervlakte-reël [7.7.2.1; 7.7.2.2]

$$\begin{aligned} \text{(a)} \quad \Delta ABC &= \frac{1}{2} AB \times AC \times \sin \hat{A} \\ &= \frac{1}{2} (76)(46)\sin 38^\circ \\ &= 1076.18 \text{ m}^2 \end{aligned}$$

$$\begin{aligned} \text{(b)} \quad \Delta ABC &= \frac{1}{2} BC \times BD \times \sin \hat{B} \\ &= \frac{1}{2} (98)(18)\sin 11^\circ \\ &= 168.29 \text{ km}^2 \end{aligned}$$

$$\begin{aligned} \text{(c)} \quad \sin \hat{B} &= \frac{2 \times \text{oppervlakte}}{BC \cdot BD} \\ \sin \hat{B} &= \frac{2 \times 149}{(42)(56)} \\ \sin \hat{B} &= 0.12670068 \\ \therefore \hat{B} &= 7.28^\circ \\ \text{of} \\ \hat{B} &= 172.72^\circ \end{aligned}$$

(d) Bereken die oppervlakte van  $\Delta FGH$  as  $\tan \hat{F} = 3.271$ ,  $FG = 82$  cm en  $FH = 83$  cm.

$$\tan \hat{F} = 3.271$$

$$\therefore \hat{F} = 73^\circ$$



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$$\Delta FGH = \frac{1}{2} \times FG \times FH \times \sin \hat{F}$$

$$\Delta FGH = \frac{1}{2} \times 82 \times 83 \times \sin 73^\circ$$

$$\Delta FGH = 3254.31 \text{ cm}^2$$

(e) Bereken die lengte van DE as  $\Delta DEF = 623 \text{ m}^2$ ,  $DF = 28 \text{ m}$  en  $\hat{D} = 63^\circ$

$$DE = \frac{2 \times \text{oppervlakte}}{DF \times \sin \hat{D}}$$

$$DE = \frac{2 \times 623}{28 \times \sin 63^\circ}$$

$$DE = 49.94 \text{ m}$$

