



Wiskunde:

Meetkunde: 2D figure
Oppervlak: Inverse Formules

Graad 7

Oppervlak: Inverse formules:

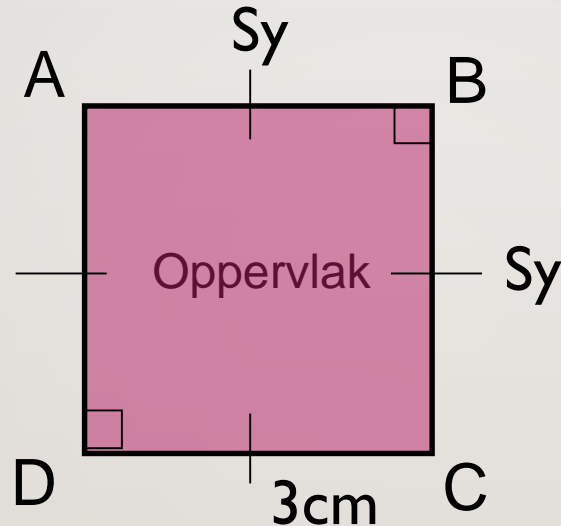
- Indien 'n figuur se oppervlak en sekere sylengtes bekend is, moet ons daardie inligting kan gebruik om die oorblywende sy(e) se lengte(s) te bepaal.
 - Ons gaan fokus op vierkante en reghoeke.

Vierkant:

$$\text{Opp} = Sy^2$$

Inverse:

$$Sy = \sqrt{\text{Opp}_{\square}}$$



$$\begin{aligned} \text{Opp}_{\square ABCD} &= sy^2 \\ &= (3\text{cm})^2 \\ &= 3\text{cm} \times 3\text{cm} \\ &= 9\text{cm}^2 \end{aligned}$$

$$\begin{aligned} Sy &= \sqrt{\text{Opp}_{\square ABCD}} \\ &= \sqrt{9\text{cm}^2} \\ &= 3\text{cm} \end{aligned}$$

Eksponent gee opdrag:

- Vat die getal en maal hom soveel keer as wat die eksponent aandui, met homself.

Wortels vra 'n vraag:

- Vierkantswortel vra: Wat maal met homself gee die getal onder die wortel?

- Reghoek:

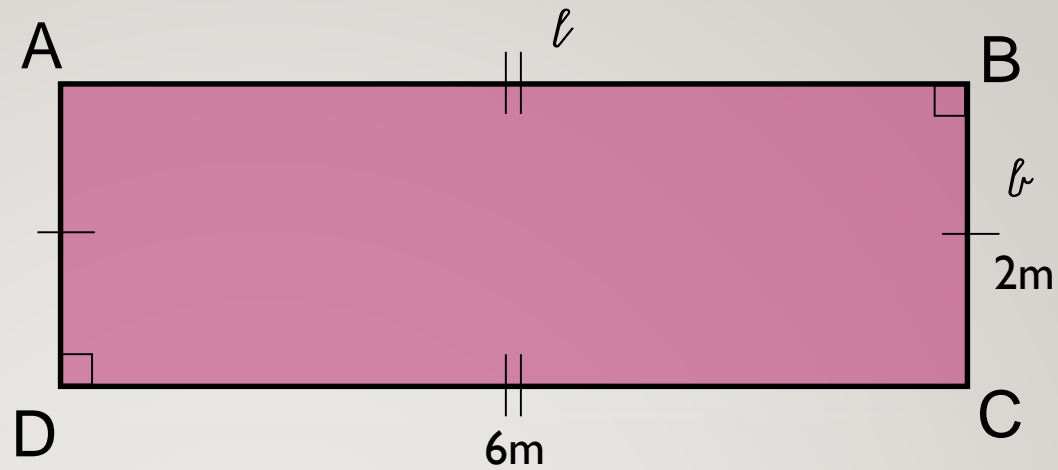
$$\text{Opp Reg}\sphericalangle = l \times b$$

Inverses:

$$l = \text{Opp Reg}\sphericalangle \div b$$

en

$$b = \text{Opp Reg}\sphericalangle \div l$$



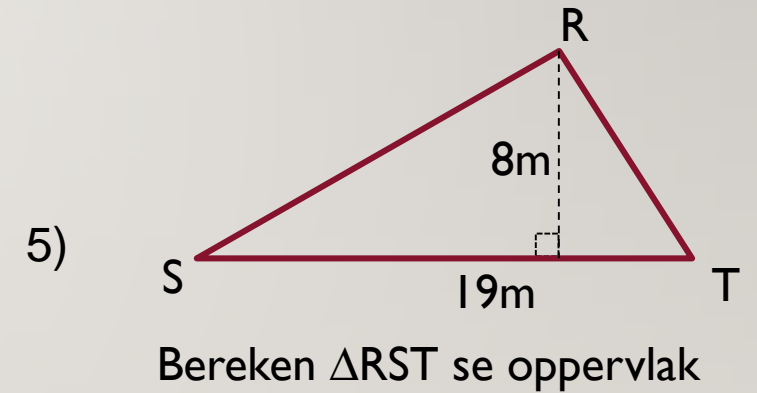
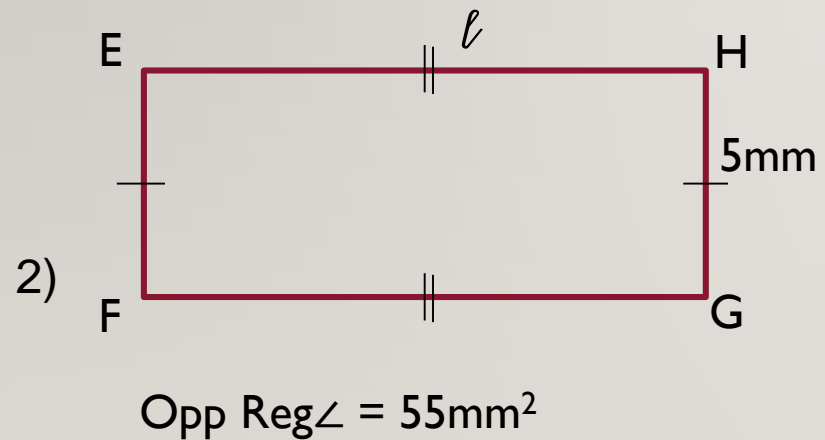
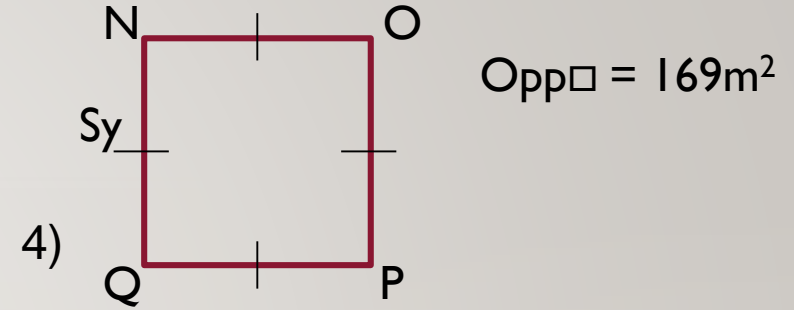
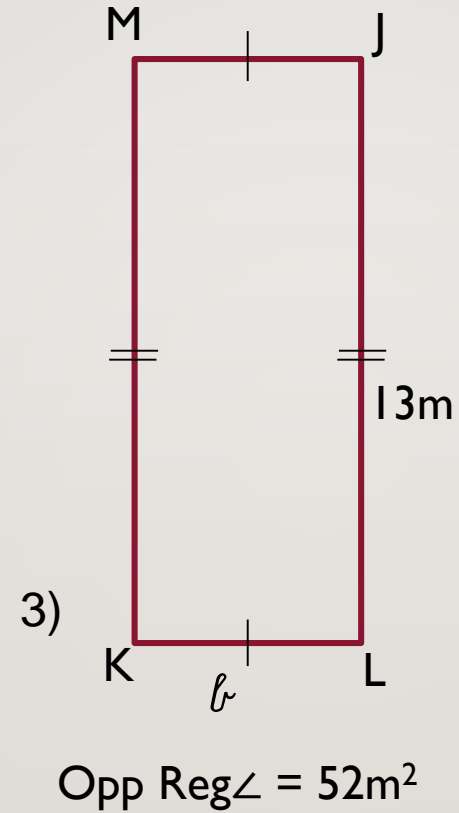
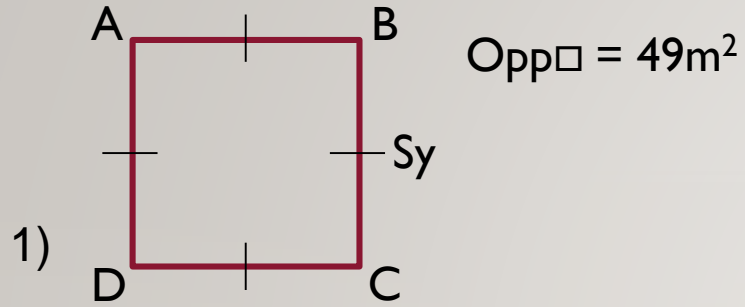
$$\begin{aligned}\text{Opp Reg}\sphericalangle &= l \times b \\ &= 6\text{m} \times 2\text{m} \\ &= 12\text{m}^2\end{aligned}$$

$$\begin{aligned}l &= \text{Opp Reg}\sphericalangle \div b \\ &= 12\text{m}^2 \div 2\text{m} \\ &= 6\text{m}\end{aligned}$$

$$\begin{aligned}b &= \text{Opp Reg}\sphericalangle \div l \\ &= 12\text{m}^2 \div 6\text{m} \\ &= 2\text{m}\end{aligned}$$

Oppervlak: Oefening 2

Bereken die onbekendes in elk van die volgende gevalle:



Oppervlak: Oefening 3

Deur elke keer die formule te gebruik vind die onbekendes in die onderstaande tabel:

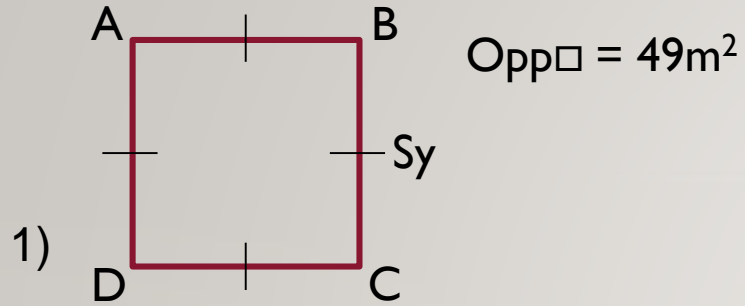
Vierkant	
Sy	Oppervlak
9km	(3.1)
2,4m	(3.2)
(3.3)	64mm ²
(3.4)	121cm ²

Reghoek		
Lengte	Breedte	Oppervlak
4,5m	3,5m	(3.5)
(3.6)	2m	12,4m ²
8mm	(3.7)	40mm ²
$3\frac{3}{4}$ km	$2\frac{3}{5}$ km	(3.8)

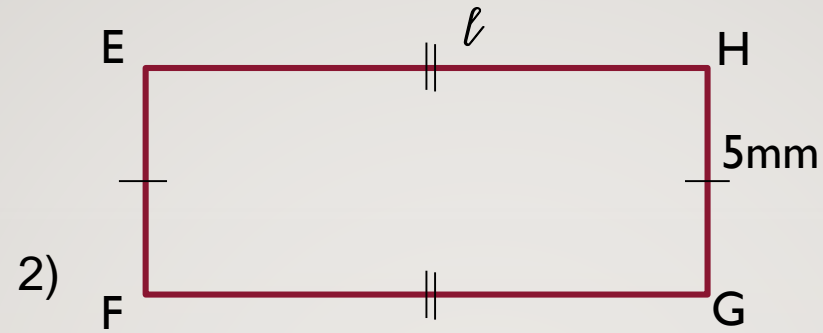
Driehoek		
Basis	⊥hoogte	Oppervlak
42cm	12cm	(3.9)
15m	7m	(3.10)

Oppervlak: Oefening 2 - Memorandum

Bereken die onbekendes in elk van die volgende gevalle:

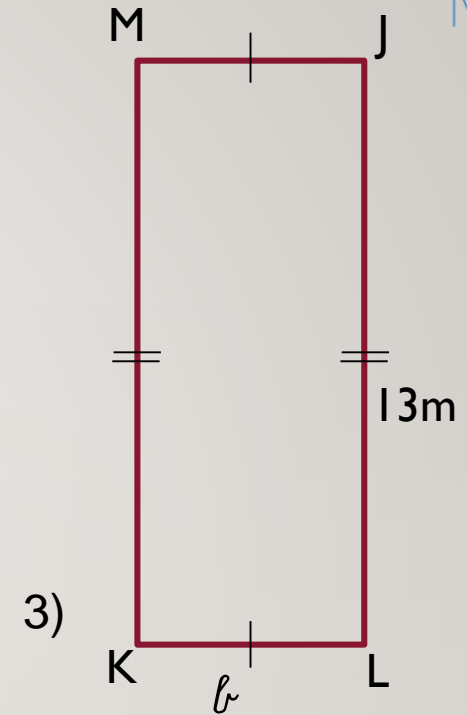


$$\begin{aligned}
 S_y &= \sqrt{\text{Opp}\square ABCD} \\
 &= \sqrt{49\text{m}^2} \\
 &= 7\text{m}
 \end{aligned}$$



$$\text{Opp Reg}\angle = 55\text{mm}^2$$

$$\begin{aligned}
 l &= \text{Opp Reg}\angle EFGH \div 5 \\
 &= 55\text{mm}^2 \div 5\text{mm} \\
 &= 11\text{mm}
 \end{aligned}$$

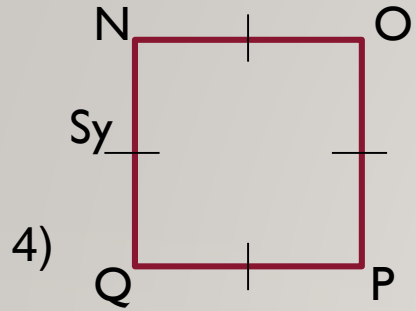


$$\text{Opp Reg}\angle = 52\text{m}^2$$

$$\begin{aligned}
 l &= \text{Opp Reg}\angle MJLK \div 13 \\
 &= 52\text{m}^2 \div 13\text{m} \\
 &= 4\text{m}
 \end{aligned}$$

Oppervlak: Oefening 2 - Memorandum

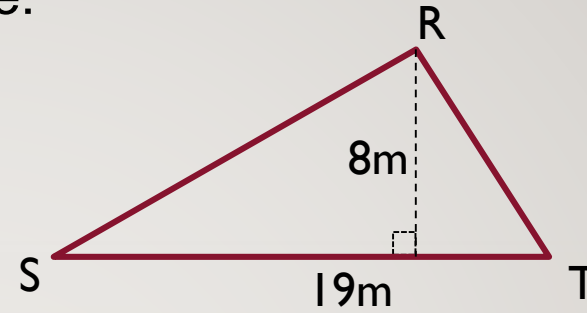
Bereken die onbekendes in elk van die volgende gevalle:



$$\text{Opp}_{\square} = 169\text{m}^2$$

$$\begin{aligned} S_y &= \sqrt{\text{Opp}_{\square} \text{NOPQ}} \\ &= \sqrt{169\text{m}^2} \\ &= 13\text{m} \end{aligned}$$

5)



Bereken ΔRST se oppervlak

$$\begin{aligned} \text{Opp } \Delta RST &= \frac{1}{2} \times \text{basis} \times \perp \text{ hoogte} \\ &= \frac{1}{2} \times 19\text{m} \times 8\text{m} \\ &= 9,5\text{m} \times 8\text{m} \\ &= 76\text{m}^2 \end{aligned}$$

of

$$\begin{aligned} \text{Opp } \Delta RST &= \frac{1}{2} \times \text{basis} \times \perp \text{ hoogte} \\ &= \frac{1}{2} \times 19\text{m} \times 8\text{m} \\ &= \frac{1}{2} \times 152\text{m}^2 \\ &= 76\text{m}^2 \end{aligned}$$

$$\begin{aligned} \text{Opp } \Delta RST &= \frac{1}{2} \times \text{basis} \times \perp \text{ hoogte} \\ \text{of} \quad &= \frac{1}{2} \times 19\text{m} \times 8\text{m} \\ &= 4\text{m} \times 19\text{m} \\ &= 76\text{m}^2 \end{aligned}$$

Oppervlak: Oefening 3 - Memorandum

Deur elke keer die formule te gebruik vind die onbekendes in die onderstaande tabel:

Vierkant	
S_y	Oppervlak
9km	(3.1)
2,4m	(3.2)
(3.3)	64mm^2
(3.4)	121cm^2

$$\begin{aligned} 3.1) \quad \text{Opp}_{\square} &= S_y \times S_y \\ &= 9\text{km} \times 9\text{km} \\ &= 81\text{km}^2 \end{aligned}$$

$$\begin{aligned} 3.2) \quad \text{Opp}_{\square} &= S_y \times S_y \\ &= 2,4\text{m} \times 2,4\text{m} \\ &= 5,76\text{m}^2 \end{aligned}$$

$$\begin{aligned} 3.3) \quad S_y &= \sqrt{\text{Opp}_{\square}} \\ &= \sqrt{64\text{mm}^2} \\ &= 8\text{mm} \end{aligned}$$

$$\begin{aligned} 3.4) \quad S_y &= \sqrt{\text{Opp}_{\square}} \\ &= \sqrt{121\text{cm}^2} \\ &= 11\text{cm} \end{aligned}$$

Oppervlak: Oefening 3 - Memorandum

Deur elke keer die formule te gebruik vind die onbekendes in die onderstaande tabel:

Reghoek		
Lengte	Breedte	Oppervlak
4,5m	3,5m	(3.5)
(3.6)	2m	12,4m ²
8mm	(3.7)	40mm ²
$3\frac{3}{4}$ km	$2\frac{3}{5}$ km	(3.8)

$$\begin{aligned} 3.5) \quad \text{Opp Reg}\sphericalangle &= l \times b \\ &= 4,5\text{m} \times 3,5\text{m} \\ &= 15,75\text{m}^2 \end{aligned}$$

$$\begin{aligned} 3.8) \quad \text{Opp Reg}\sphericalangle &= l \times b \\ &= 3\frac{3}{4}\text{km} \times 2\frac{3}{5}\text{km} \\ &= 3,75\text{km} \times 2,6\text{km} \\ &= 9,75\text{km}^2 \end{aligned}$$

$$\begin{aligned} 3.6) \quad l &= \text{Opp Reg}\sphericalangle \div b \\ &= 12,4\text{m}^2 \div 2\text{m} \\ &= 6,2\text{m} \end{aligned}$$

$$\begin{aligned} 3.7) \quad b &= \text{Opp Reg}\sphericalangle \div l \\ &= 40\text{mm}^2 \div 8\text{mm} \\ &= 5\text{m} \end{aligned}$$

Oppervlak: Oefening 3 - Memorandum

Deur elke keer die formule te gebruik vind die onbekendes in die onderstaande tabel:

Driehoek		
Basis	⊥ hoogte	Oppervlak
42cm	12cm	(3.9)
15m	7m	(3.10)

$$\begin{aligned} 3.9) \quad \text{Opp}\Delta &= \frac{1}{2} \times \textit{basis} \times \perp \textit{hoogte} \\ &= \frac{1}{2} \times 42\textit{cm} \times 12\textit{cm} \\ &= 21\textit{cm} \times 12\textit{cm} \\ &= 252\textit{cm}^2 \end{aligned}$$

$$\begin{aligned} 3.10) \quad \text{Opp}\Delta &= \frac{1}{2} \times \textit{basis} \times \perp \textit{hoogte} \\ &= \frac{1}{2} \times 15\textit{m} \times 7\textit{m} \\ &= 7,5\textit{m} \times 7\textit{m} \\ &= 52,5\textit{m}^2 \\ &\text{of} \end{aligned}$$

$$\begin{aligned} 3.10) \quad \text{Opp}\Delta &= \frac{1}{2} \times \textit{basis} \times \perp \textit{hoogte} \\ &= \frac{1}{2} \times 15\textit{m} \times 7\textit{m} \\ &= \frac{1}{2} \times 105\textit{m}^2 \\ &= 52,5\textit{m}^2 \end{aligned}$$