




# Geometrie

---

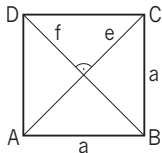
Symbole	$\triangle$	Dreieck
	$\sphericalangle$	Winkelmaß $\triangleq 90^\circ$ (Bogengrade)
Bezeichnungen	A, B, C, ...	Punkte
	a, b, c, ...	Seiten (beim $\triangle$ gegenüber A, B, C)
	u	Umfang
	A	Flächeninhalt
	$h_a$ (b, c)	Höhe über a (b, c)
	m	Mittelparallele im Trapez
	M	Kreismittelpunkt
	r	Radius
	$\pi$	Pi $\triangleq 3,1416 \dots$
	$\alpha, \beta, \gamma, \dots$	Winkel
	s	Sehne
	t	Tangente
	b	Bogenlänge
	G	Grundfläche
	O	Oberfläche
	V	Volumen (Rauminhalt)
	M	Mantelfläche
h	Körperhöhe	

	Gerade
	Strahl
	Strecke

---

## Planimetrie

### Quadrat

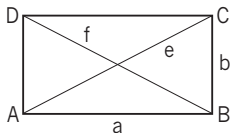


$$u = 4a$$

$$A = a^2$$

$$A = \frac{e^2}{2} = \frac{f^2}{2}$$

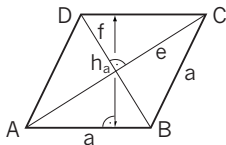
### Rechteck



$$u = 2a + 2b$$

$$A = a \cdot b$$

### Rhombus

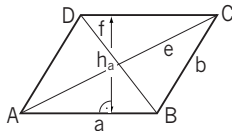


$$u = 4a$$

$$A = a \cdot h_a$$

$$A = \frac{e \cdot f}{2}$$

### Rhomboid

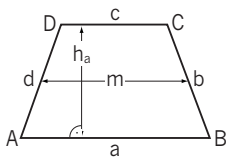


$$u = 2a + 2b$$

$$A = a \cdot h_a$$

Quadrat, Rechteck,  
Rhombus und Rhomboid sind  
alles Parallelogramme.

## Trapez

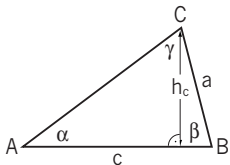


$$u = a + b + c + d$$

$$m = \frac{a + c}{2}$$

$$A = m \cdot h_a = \frac{a + c}{2} \cdot h_a$$

## Dreieck

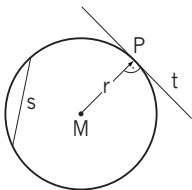


$$u = a + b + c$$

$$A = \frac{c \cdot h_c}{2}$$

$$\alpha + \beta + \gamma = 180^\circ$$

## Kreis



$$u = 2r\pi$$

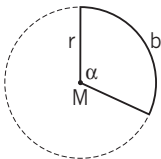
$$A = r^2\pi$$

s = Sehne

t = Tangente

P = Berührungspunkt

## Kreisausschnitt (Sektor)



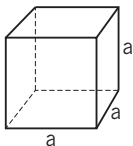
$$b = \frac{2r\pi \cdot \alpha}{360^\circ}$$

$$A = \frac{b \cdot r}{2}$$

---

## Stereometrie

### Würfel



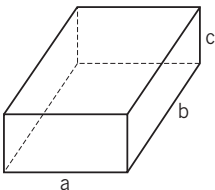
$$G = a^2$$

$$M = 4a^2$$

$$O = 6a^2$$

$$V = a^3$$

### Quader

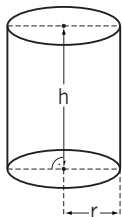


$$M = 2(ac + bc)$$

$$O = 2(ab + ac + bc)$$

$$V = a \cdot b \cdot c$$

### Zylinder



$$G = r^2 \pi$$

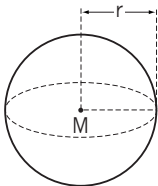
$$M = 2r \pi \cdot h$$

$$O = M + 2G$$

$$O = 2r \pi \cdot h + 2r^2 \pi$$

$$V = r^2 \pi \cdot h$$

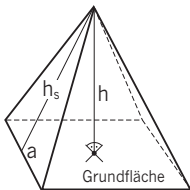
## Kugel



$$O = 4r^2 \pi$$

$$V = \frac{4r^3 \pi}{3}$$

## Regelmässige Pyramide



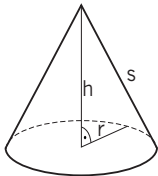
$$G = a^2$$

$$M = \frac{4a \cdot h_s}{2}$$

$$O = M + G$$

$$V = \frac{G \cdot h}{3}$$

## Kreiskegel



$$G = r^2 \pi$$

$$M = r \cdot \pi \cdot s$$

$$O = M + G$$

$$O = r \cdot \pi (r + s)$$

$$V = \frac{r^2 \pi \cdot h}{3}$$