

# MATHEMATIK - TEIL I

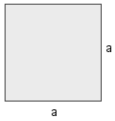
## Ebene Figuren

(Flächeninhalt: A, Umfang: u)

### Quadrat

$$A = a^2$$

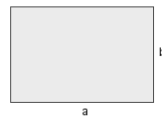
$$u = 4 \cdot a$$



### Rechteck

$$A = a \cdot b$$

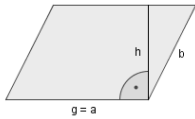
$$u = 2 \cdot a + 2 \cdot b$$



### Parallelogramm

$$A = g \cdot h$$

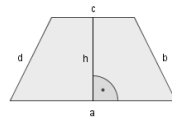
$$u = 2 \cdot a + 2 \cdot b$$



### Trapez

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

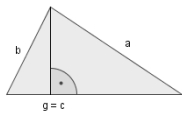
$$u = a + b + c + d$$



### Dreieck

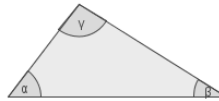
$$A = a \cdot b$$

$$u = 2 \cdot a + 2 \cdot b$$



### Winkelsumme

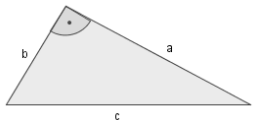
$$\alpha + \beta + \gamma = 180^\circ$$



### Satz des Pythagoras

In rechtwinkligen Dreiecken gilt:

$$a^2 + b^2 = c^2$$



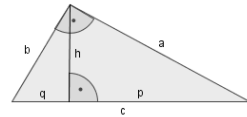
### Höhen- und Kathetensatz

In rechtwinkligen Dreiecken gilt:

$$h^2 = p \cdot q$$

$$a^2 = c \cdot p$$

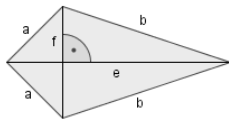
$$b^2 = c \cdot q$$



### Drachen

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

$$u = 2 \cdot (a + b)$$

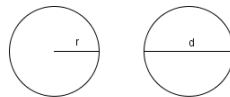


### Kreis

$$d = 2 \cdot r$$

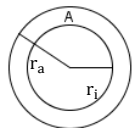
$$A = \pi \cdot r^2 = \pi \cdot \frac{d^2}{4}$$

$$u = 2 \cdot \pi \cdot r = \pi \cdot d$$



### Kreisring

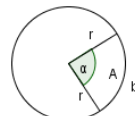
$$A = \pi \cdot (r_a^2 - r_i^2)$$



### Kreis Sektor und Kreisbogen

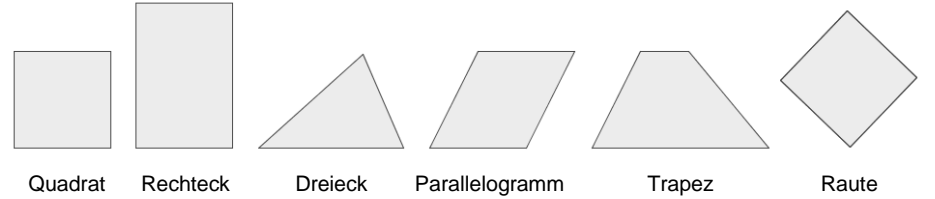
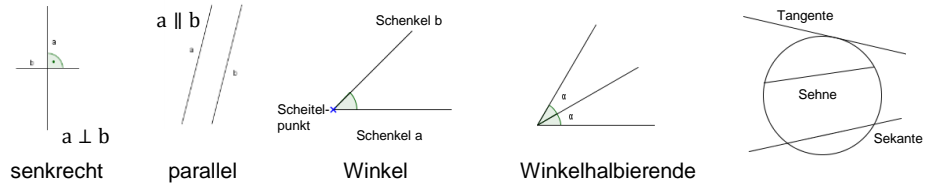
$$A = \frac{\pi \cdot r^2 \cdot \alpha}{360^\circ}$$

$$b = \frac{\pi \cdot r \cdot \alpha}{180^\circ}$$



# MATHEMATIK - TEIL II

## Geometrische Bezeichnungen



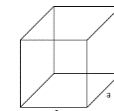
## Körper

(Volumen: V, Oberfläche: O, Grundfläche: G, Mantelfläche: M)

### Würfel

$$V = a^3$$

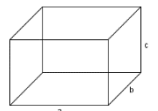
$$O = 6 \cdot a^2$$



### Quader

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

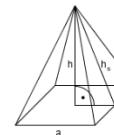
$$O = 2 \cdot a \cdot b + 2 \cdot a \cdot c + 2 \cdot b \cdot c$$



### Quadratische Pyramide

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

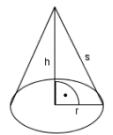
$$O = a^2 + 2 \cdot a \cdot h_s$$



### Kegel

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

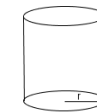
$$O = \pi \cdot r^2 + \pi \cdot r \cdot s$$



### Zylinder

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

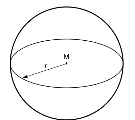
$$O = 2 \cdot \pi \cdot r^2 + 2 \cdot \pi \cdot r \cdot h$$



### Kugel

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

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



### Prisma

$$V = G \cdot h$$

$$O = 2 \cdot G + M$$

