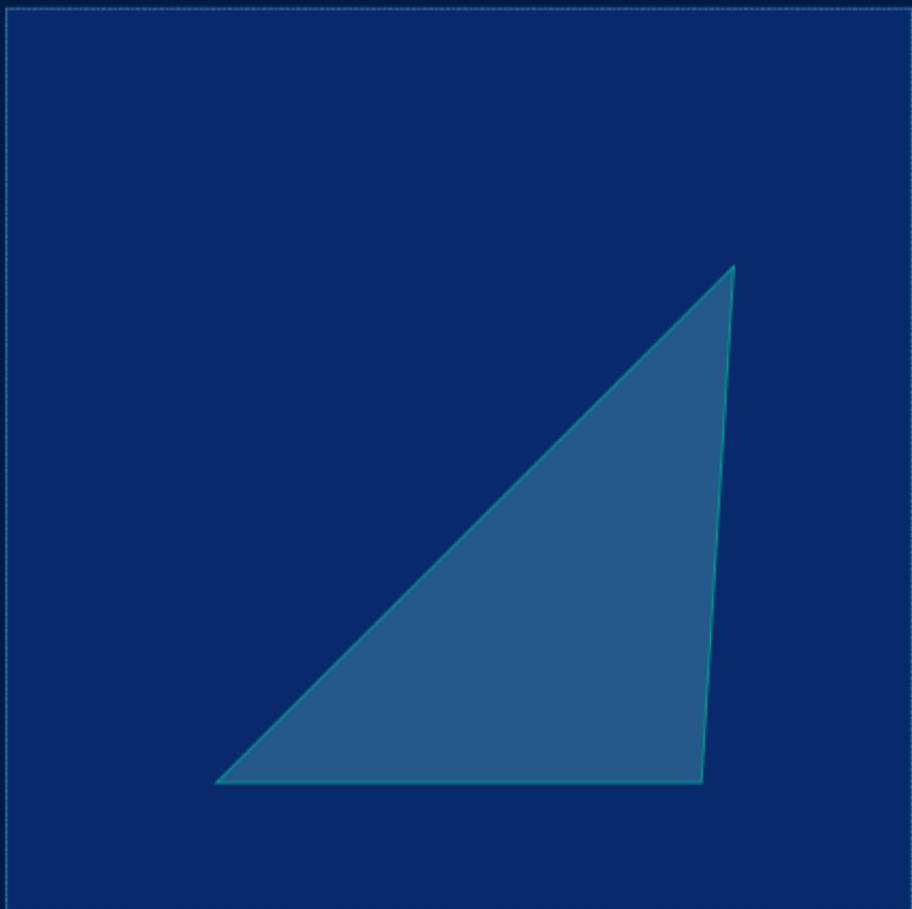


# Mathematik? Spiel!

Die Winkelsumme im Dreieck



## Die Winkelsumme im Dreieck



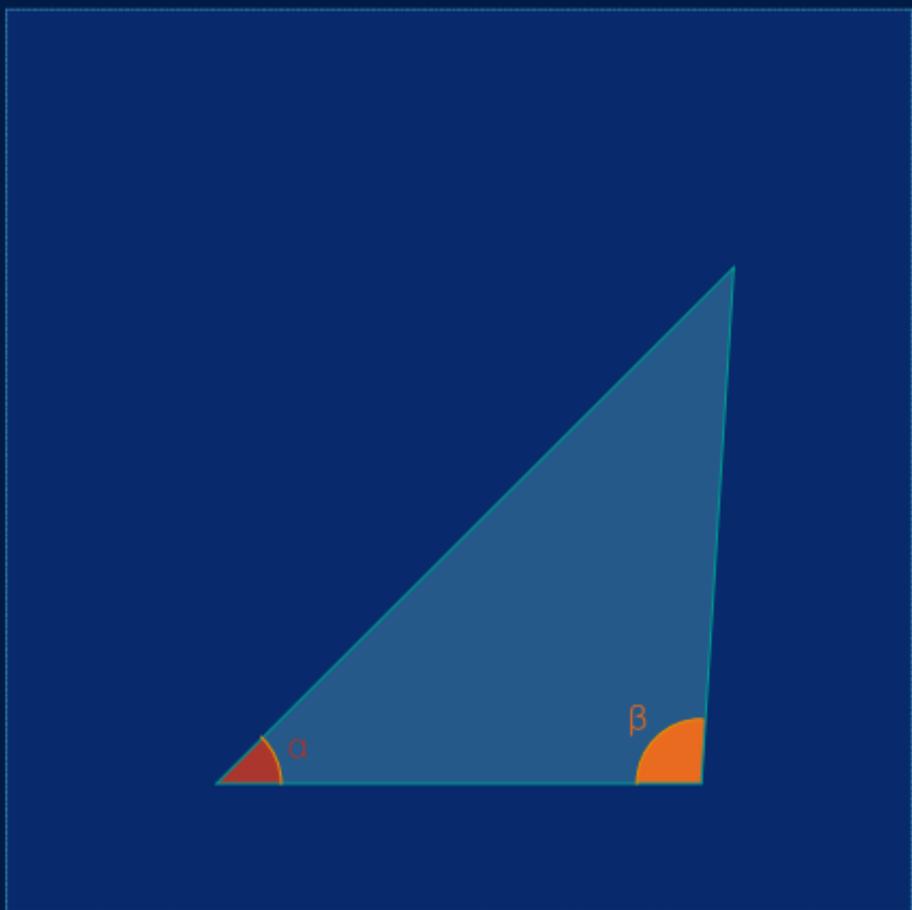


## Die Winkelsumme im Dreieck



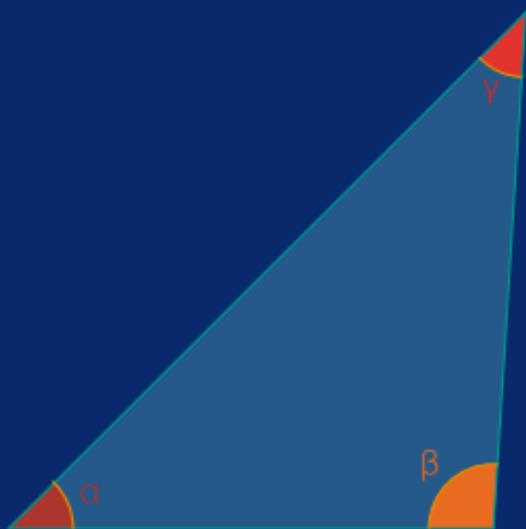


## Die Winkelsumme im Dreieck



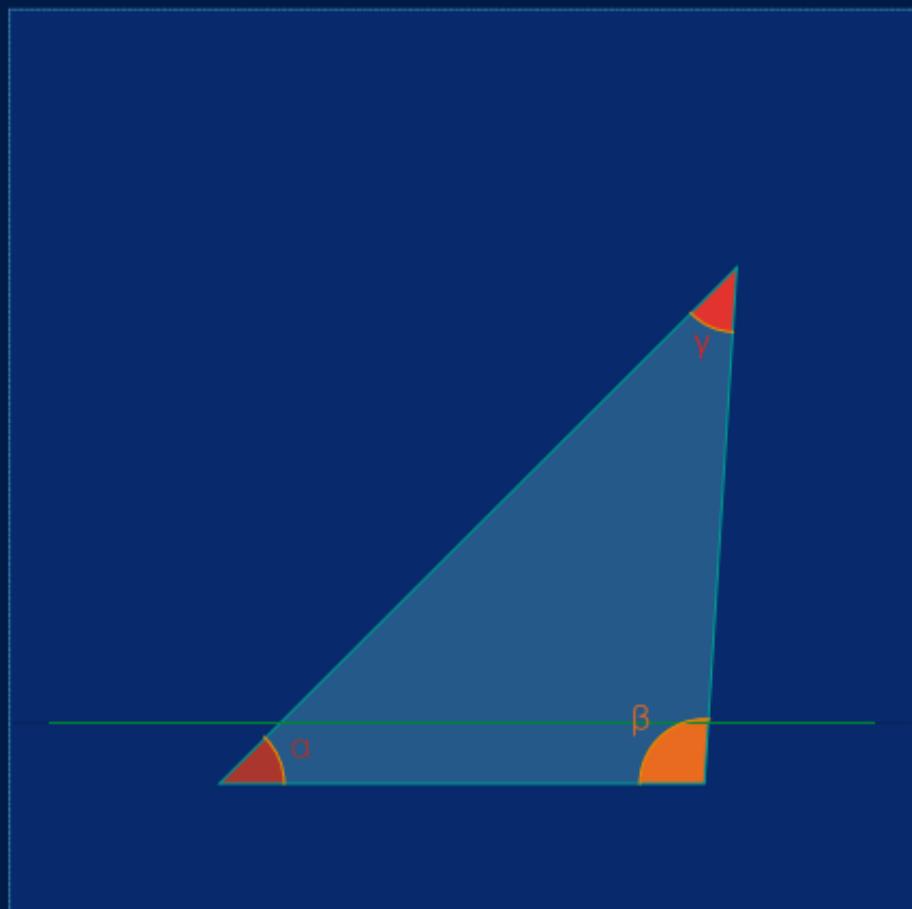


## Die Winkelsumme im Dreieck



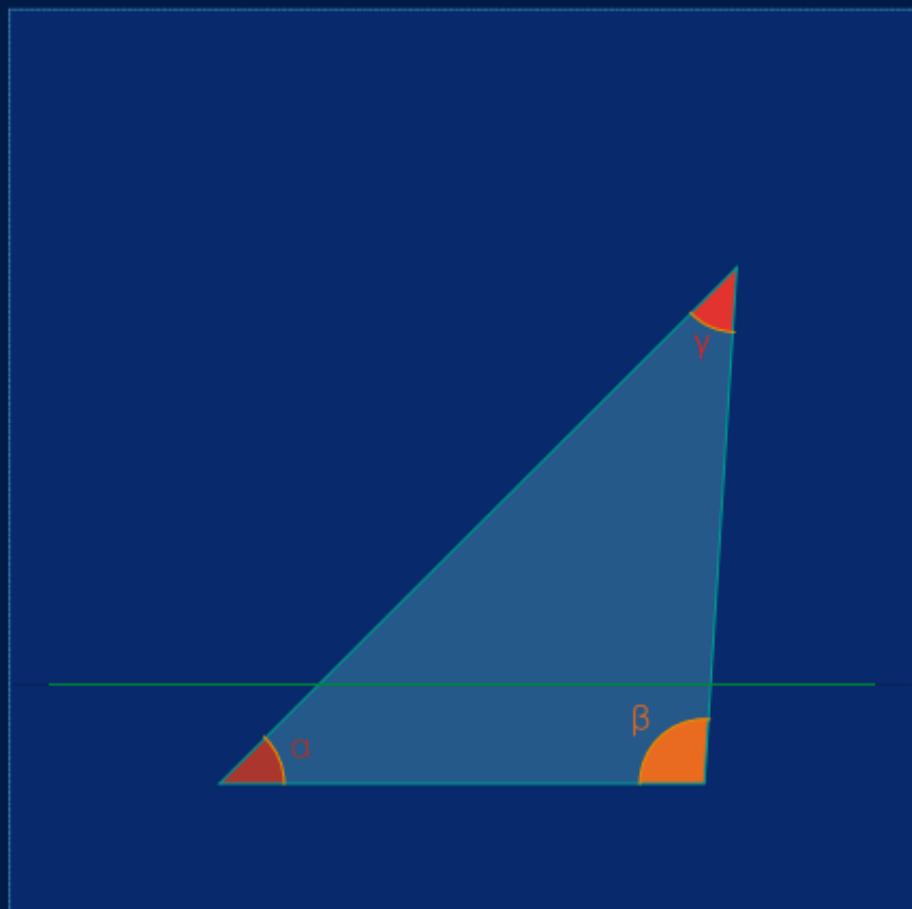


## Die Winkelsumme im Dreieck



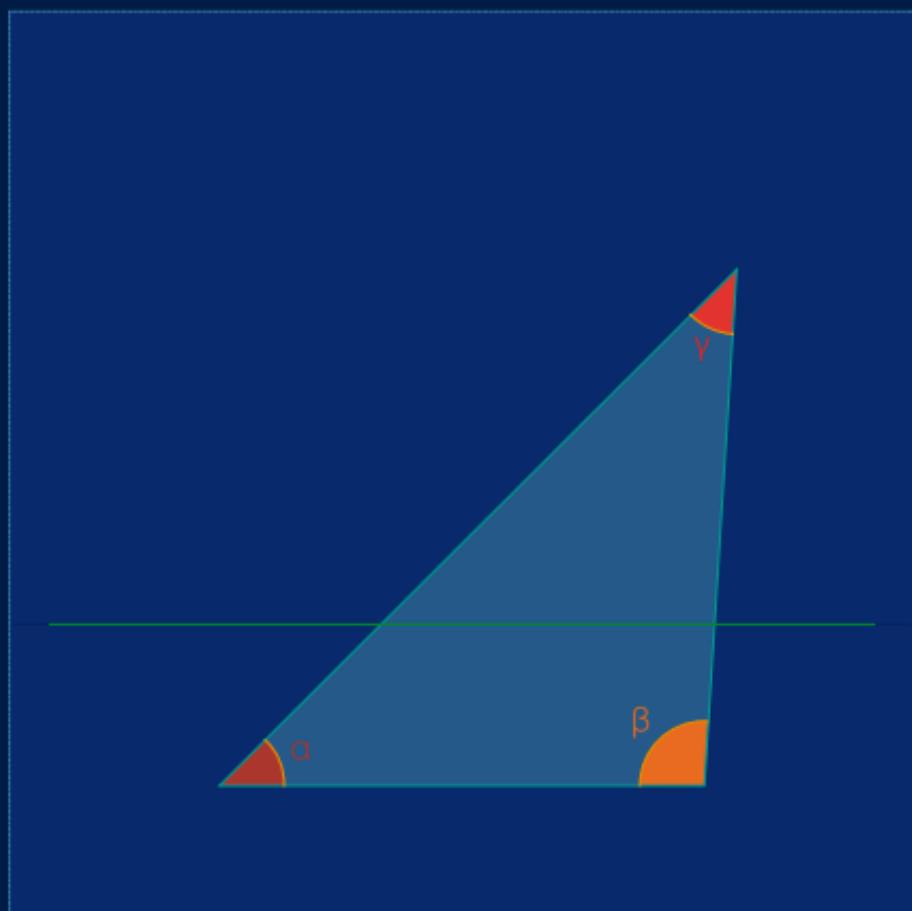


## Die Winkelsumme im Dreieck



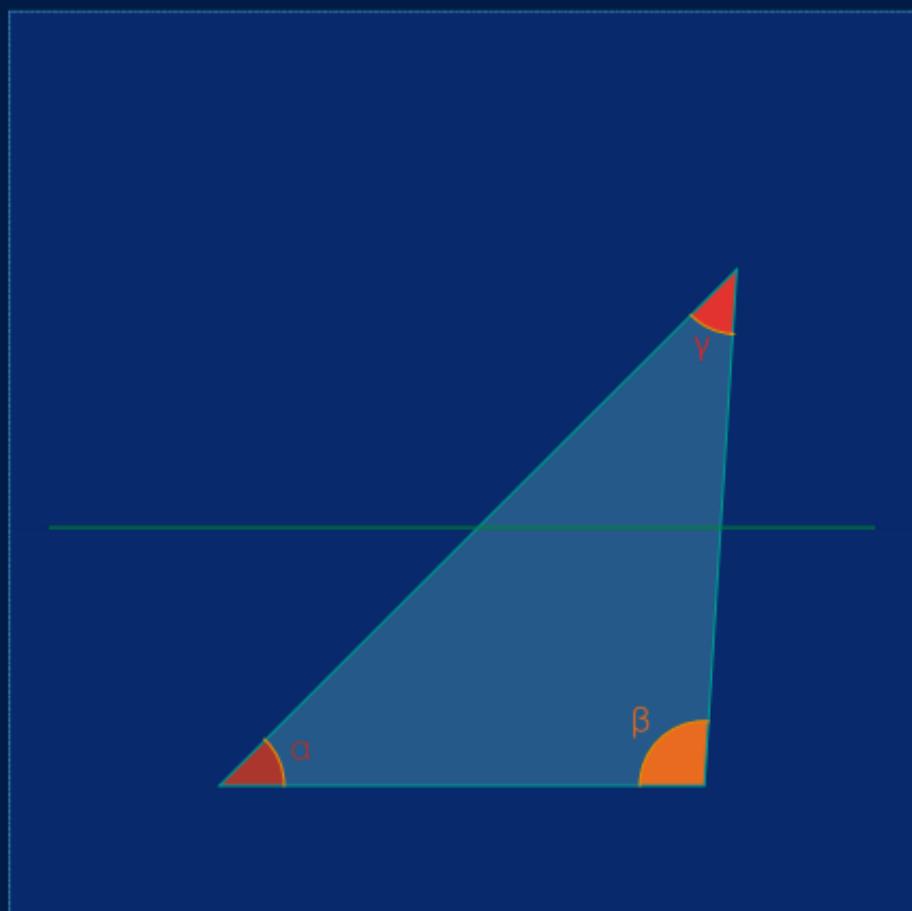


## Die Winkelsumme im Dreieck



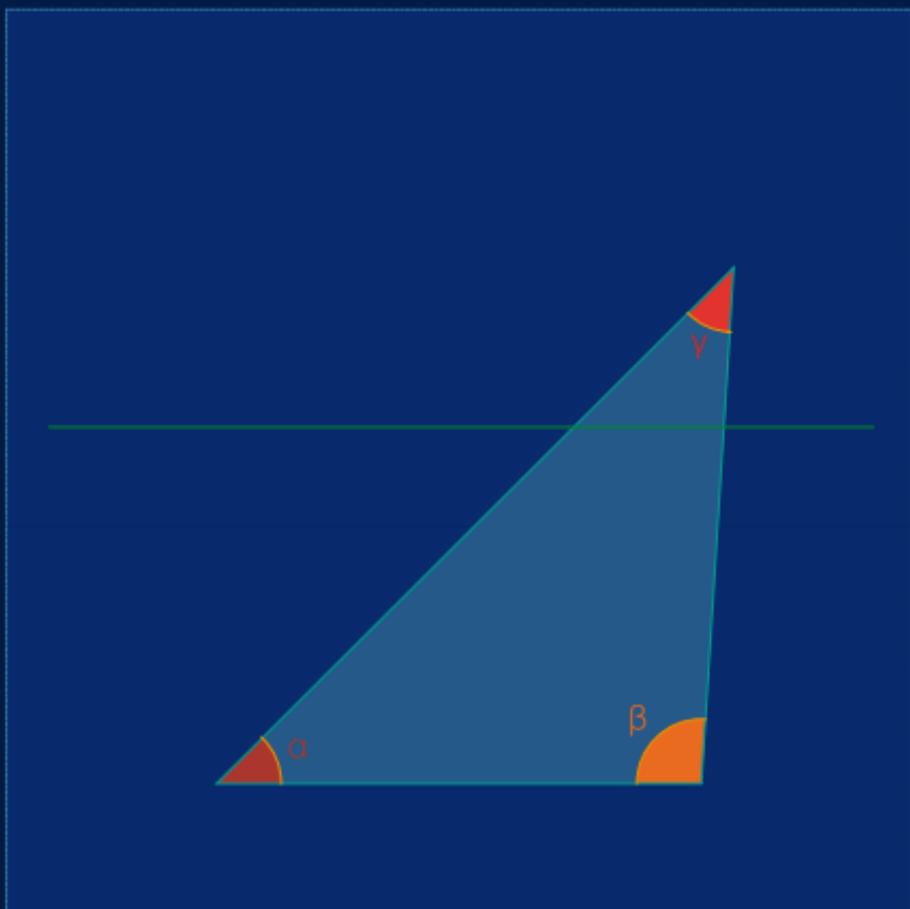


## Die Winkelsumme im Dreieck



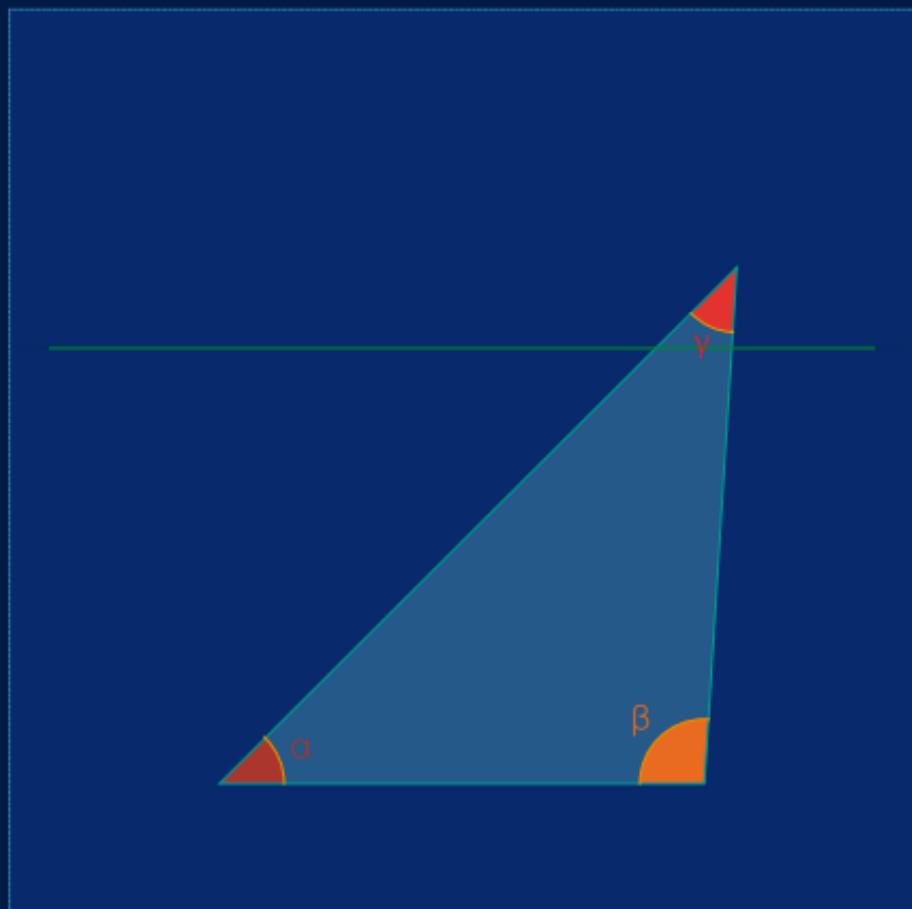


## Die Winkelsumme im Dreieck



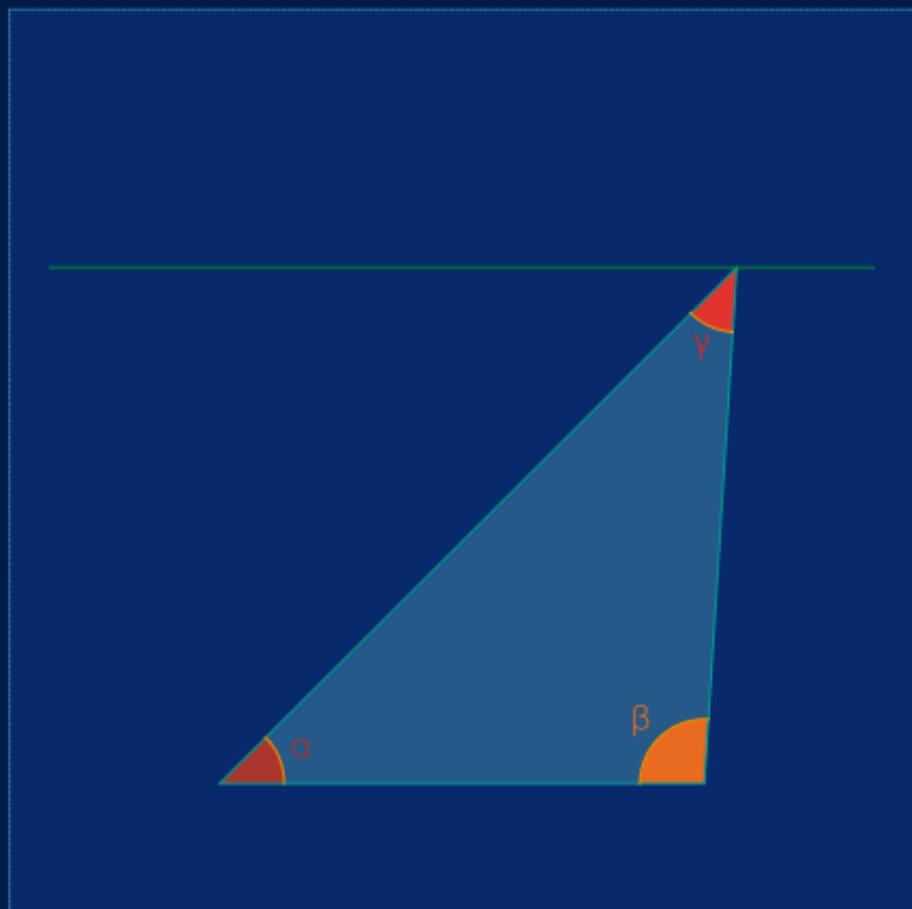


## Die Winkelsumme im Dreieck



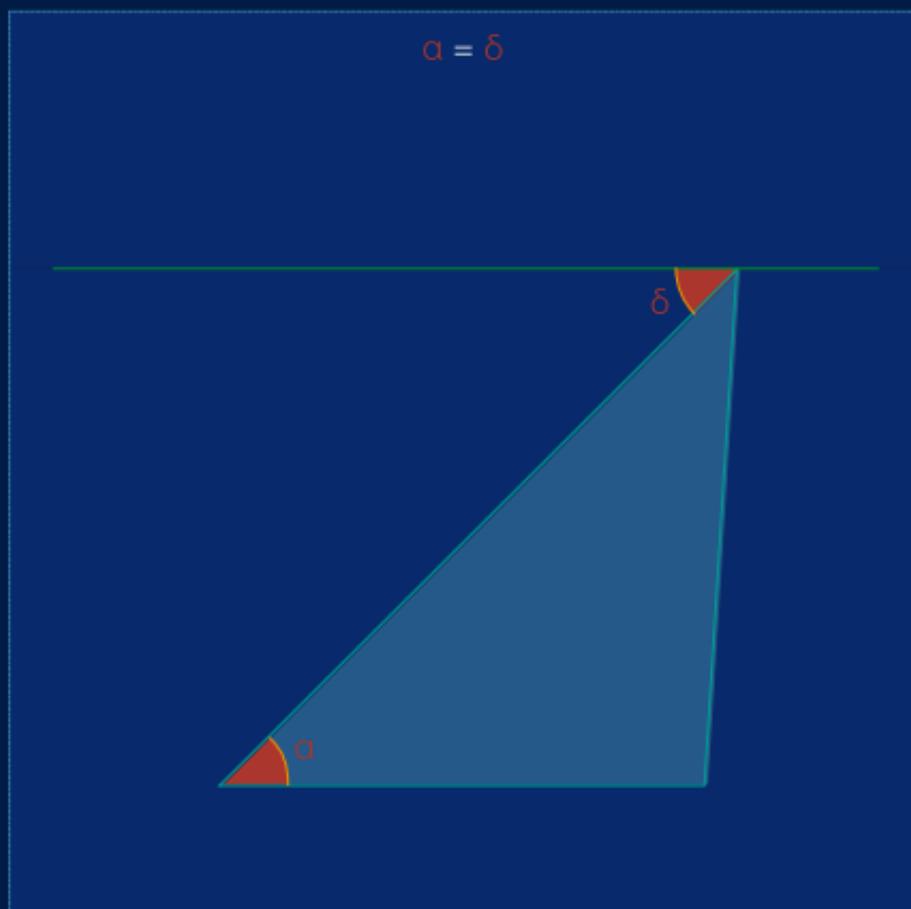


## Die Winkelsumme im Dreieck



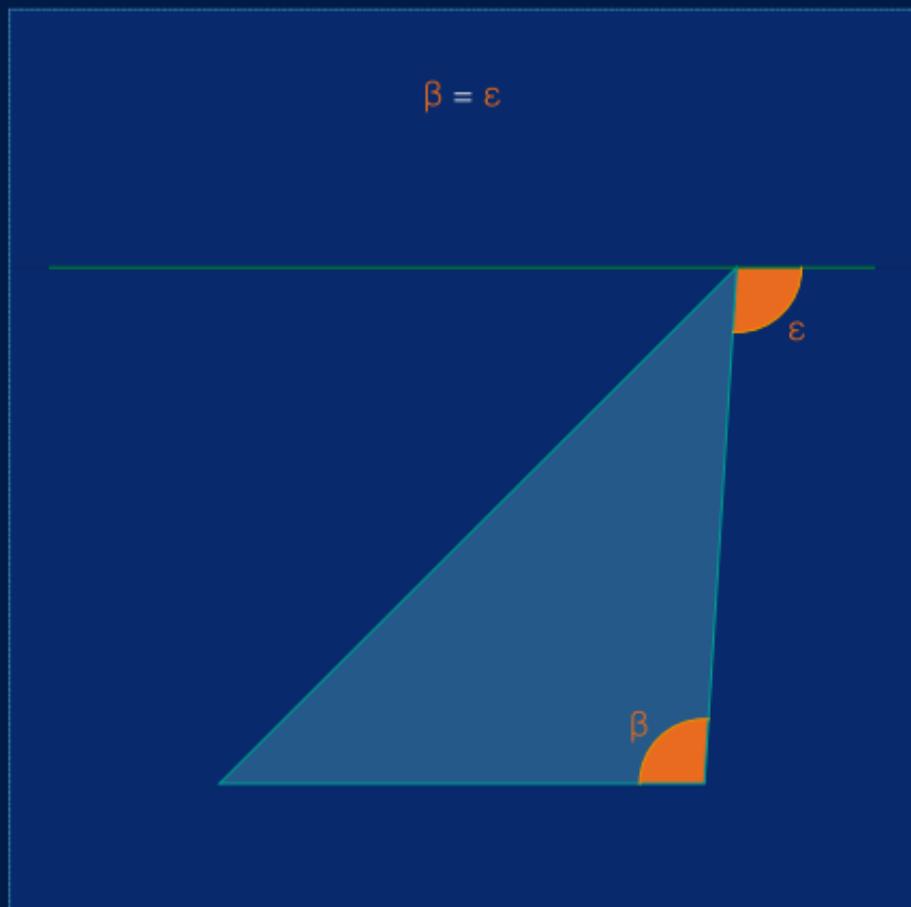


## Die Winkelsumme im Dreieck





## Die Winkelsumme im Dreieck

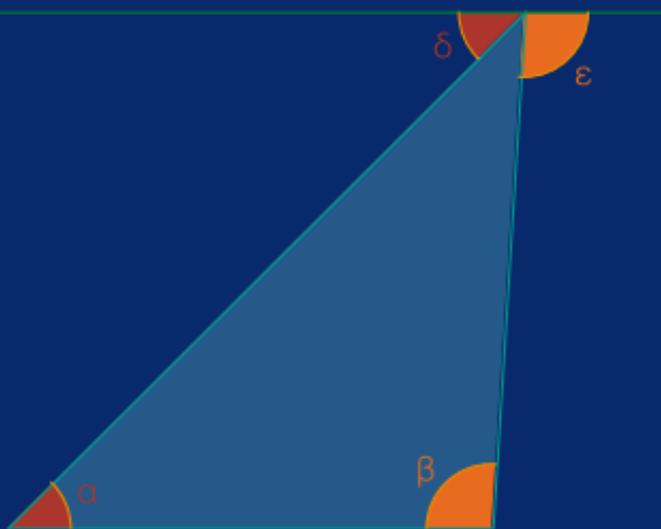




## Die Winkelsumme im Dreieck

$$\alpha = \delta$$

$$\beta = \varepsilon$$

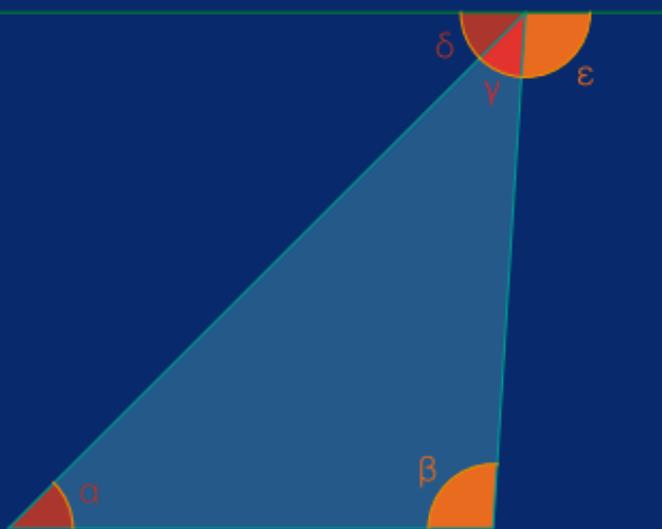




## Die Winkelsumme im Dreieck

$$\alpha = \delta$$

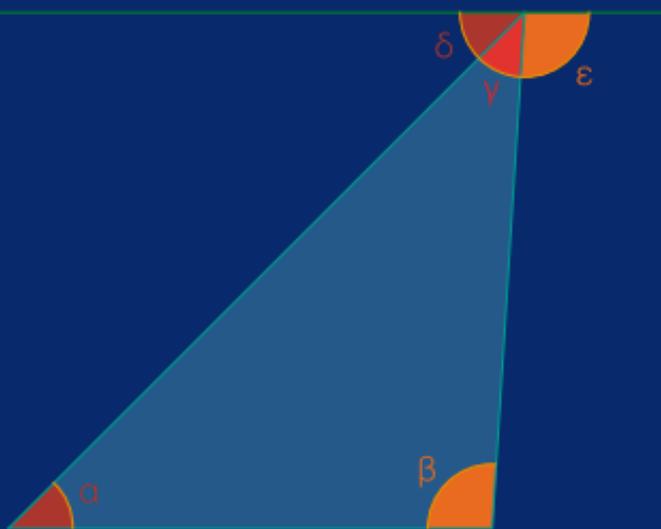
$$\beta = \varepsilon$$





## Die Winkelsumme im Dreieck

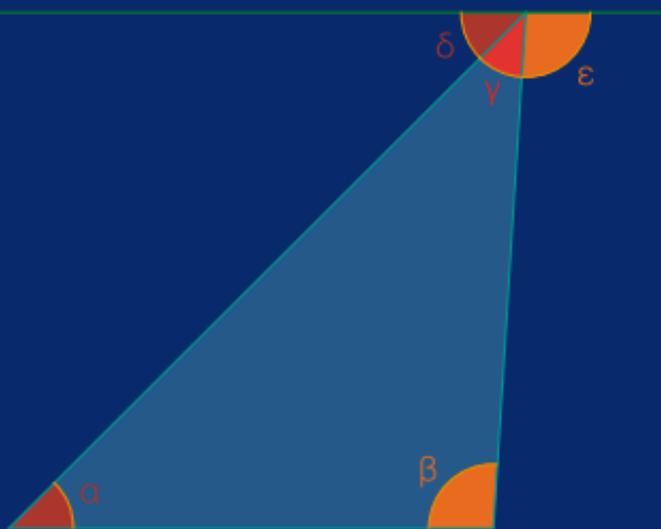
$$\begin{aligned} \alpha &= \delta \\ \beta &= \varepsilon \\ \delta + \varepsilon + \gamma &= \alpha + \beta + \gamma = 180^\circ \end{aligned}$$





## Die Winkelsumme im Dreieck

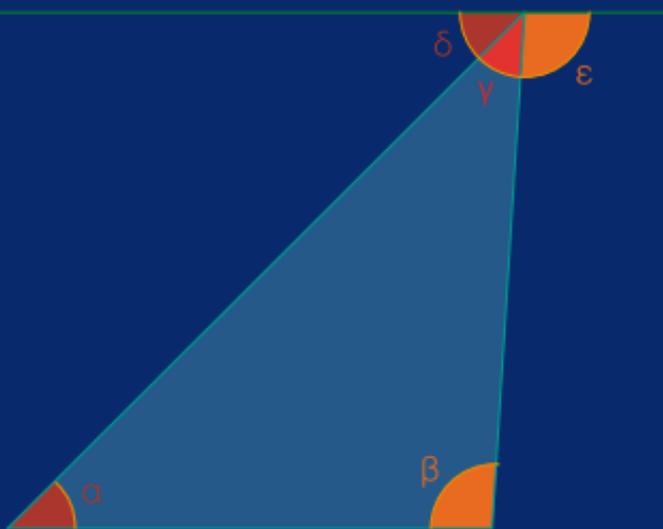
$$\begin{aligned}\alpha &= \delta \\ \beta &= \varepsilon \\ \delta + \varepsilon + \gamma &= \alpha + \beta + \gamma = 180^\circ\end{aligned}$$





## Die Winkelsumme im Dreieck

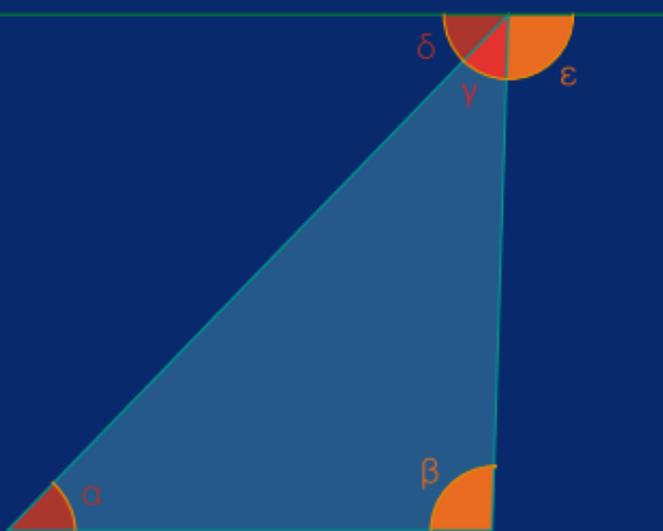
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

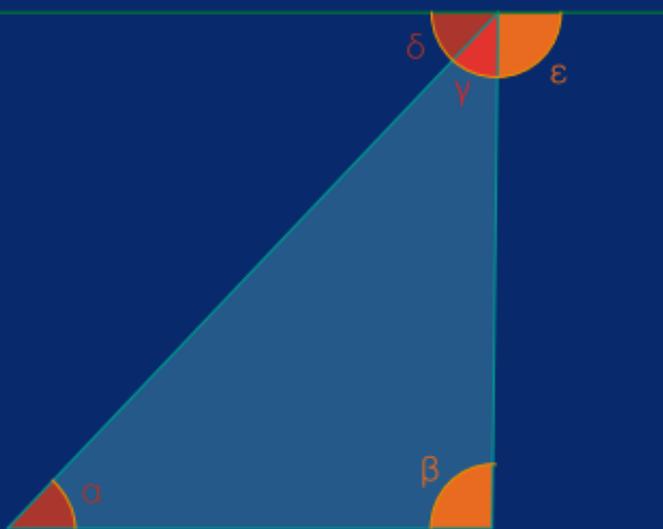
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

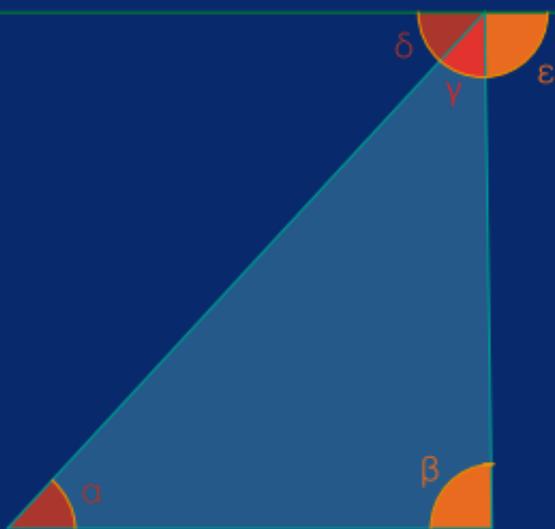
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

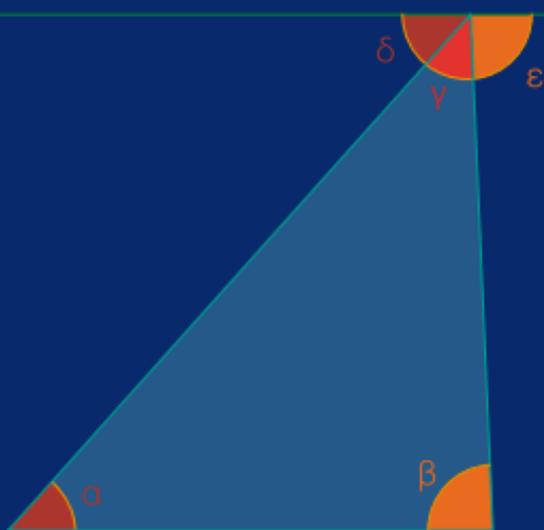
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

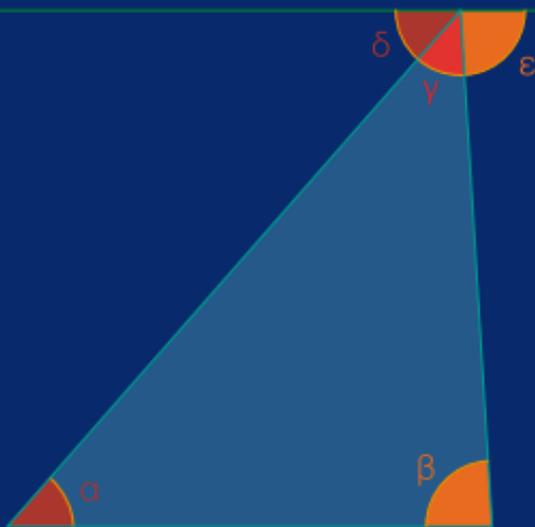
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

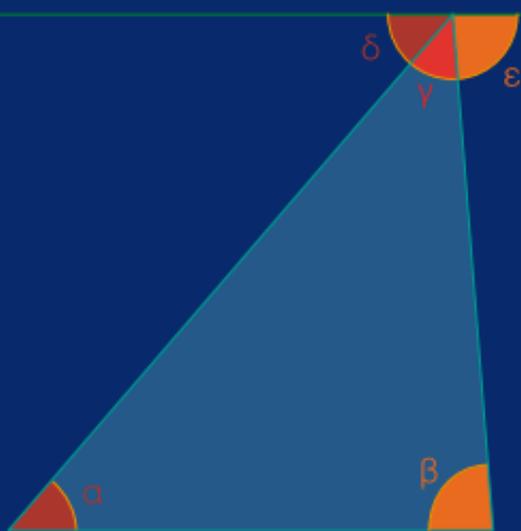
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

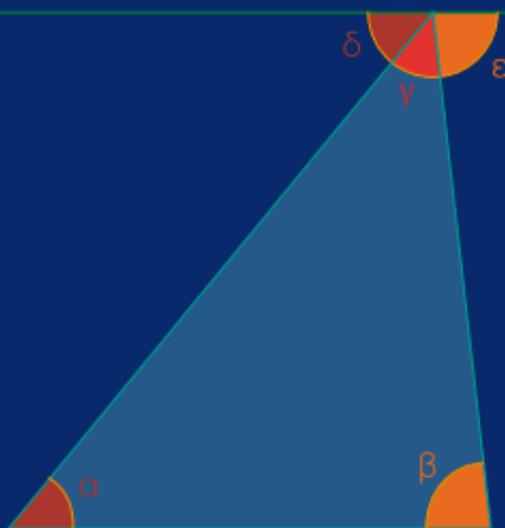
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

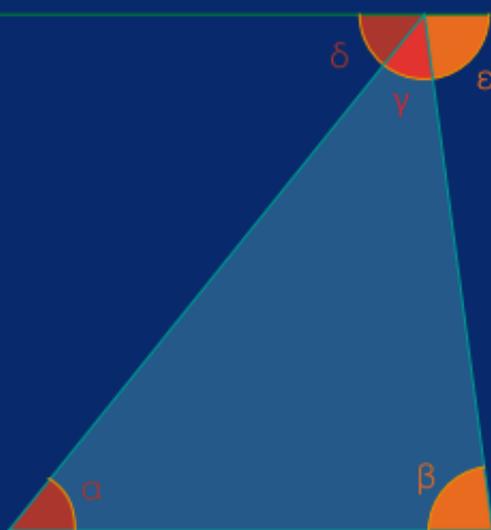
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

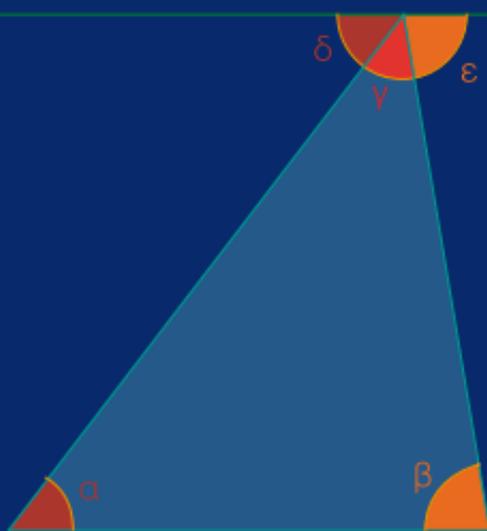
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

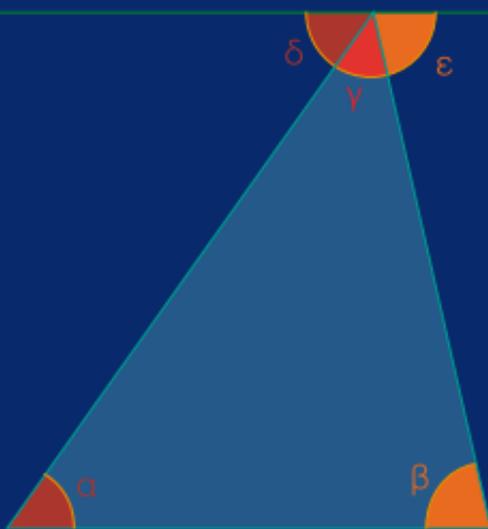
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

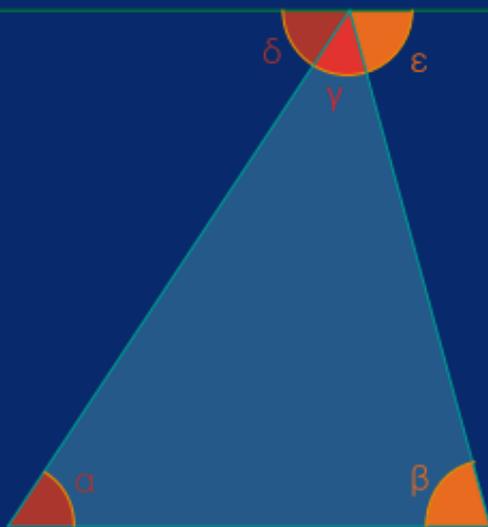
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

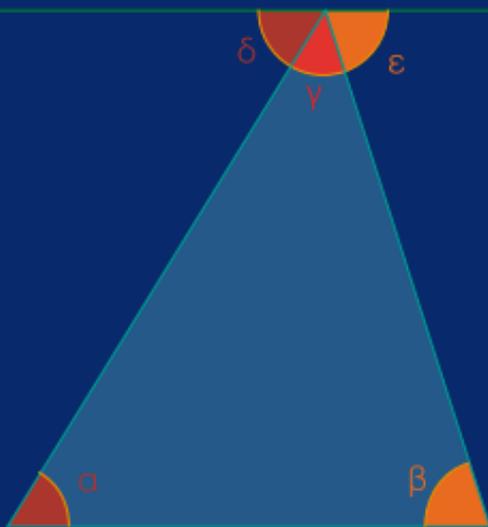
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

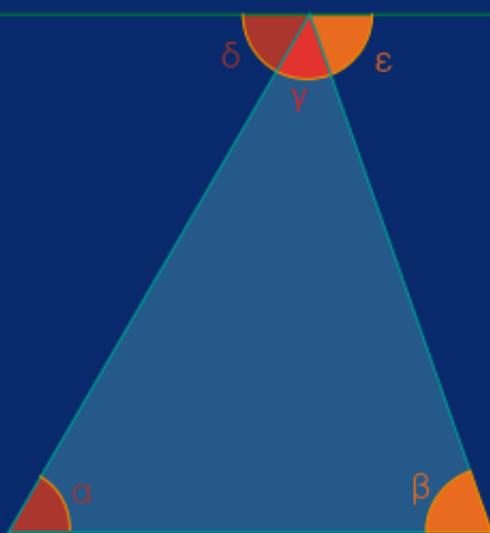
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

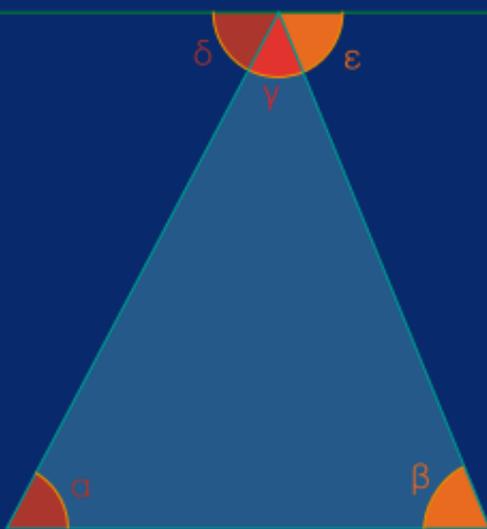
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

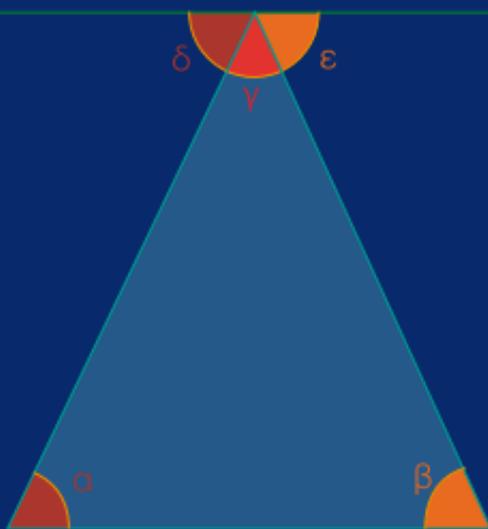
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

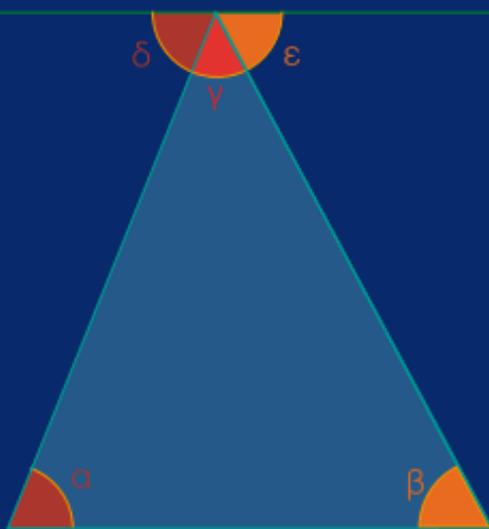
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

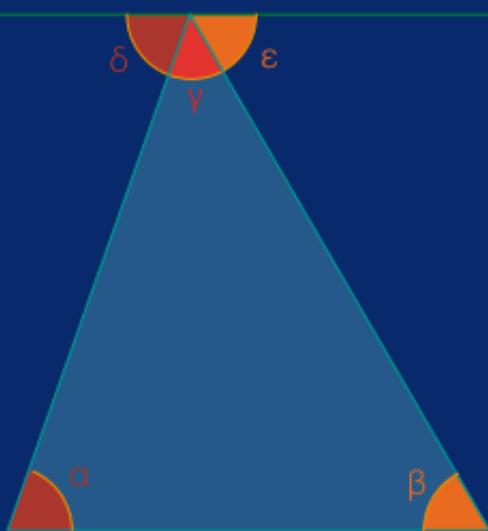
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

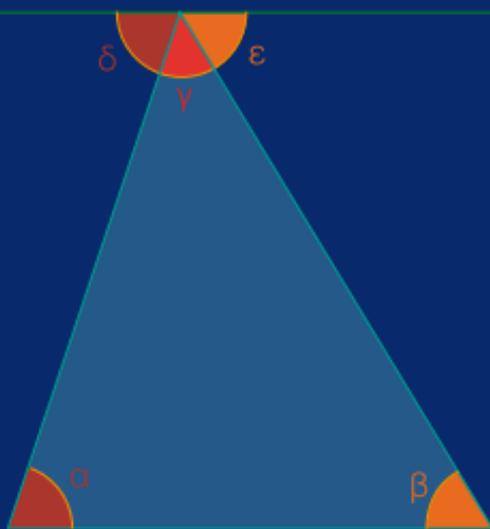
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

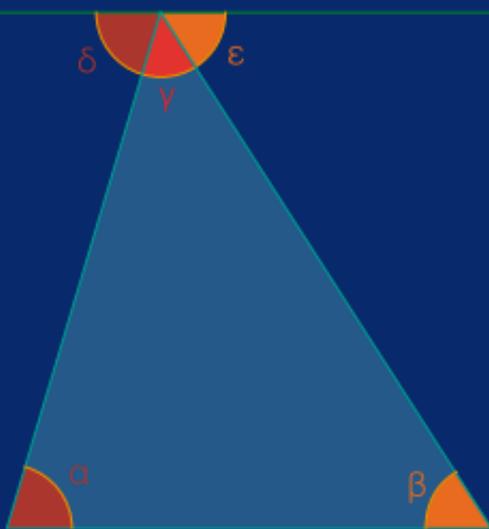
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

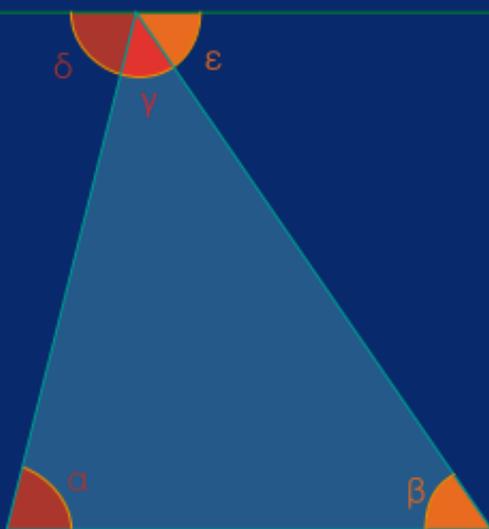
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

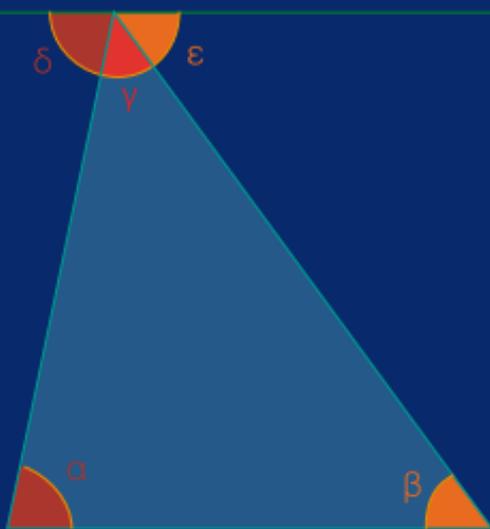
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

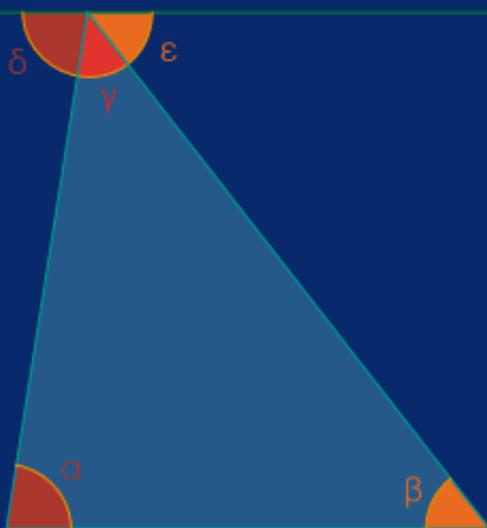
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

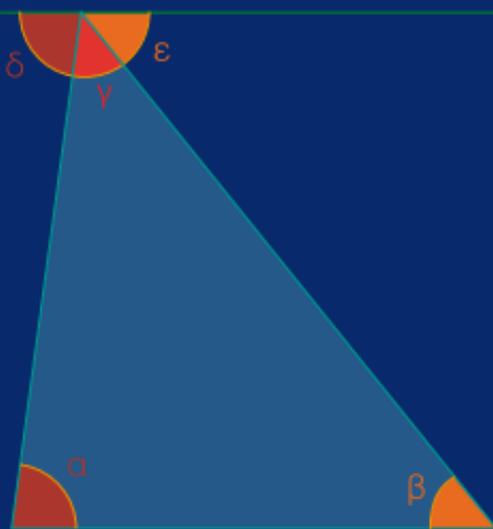
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

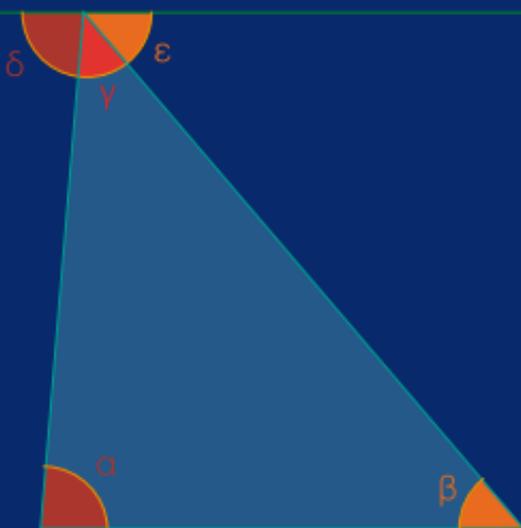
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

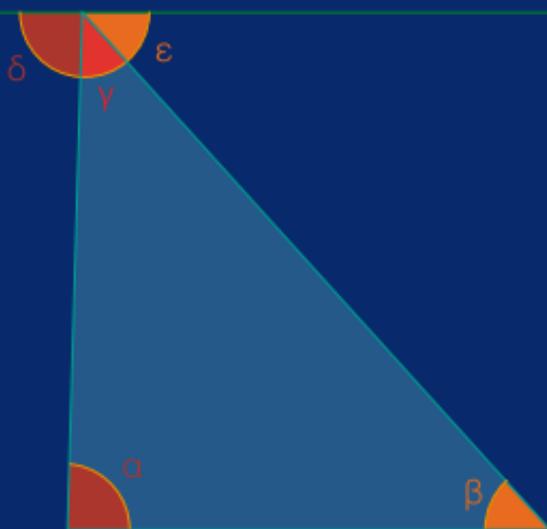
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

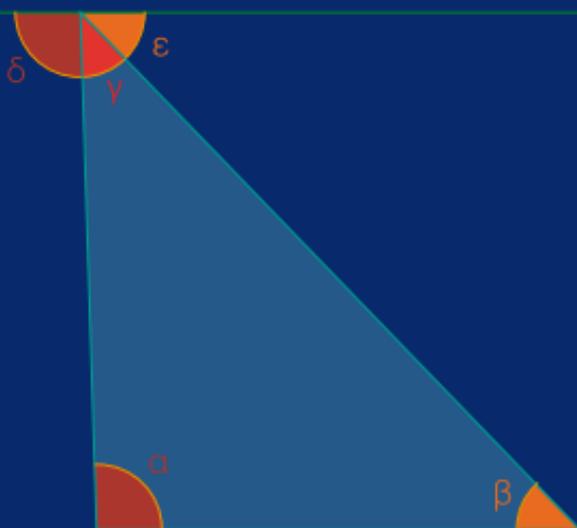
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

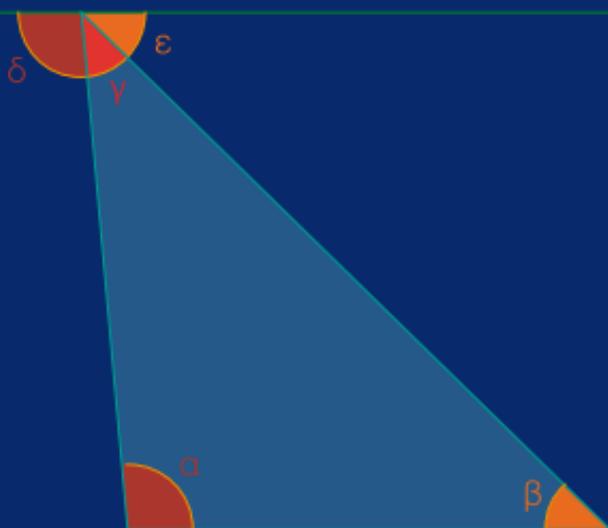
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

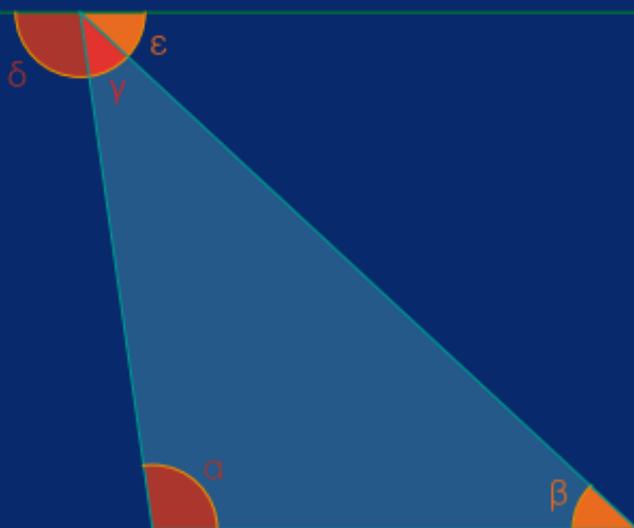
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

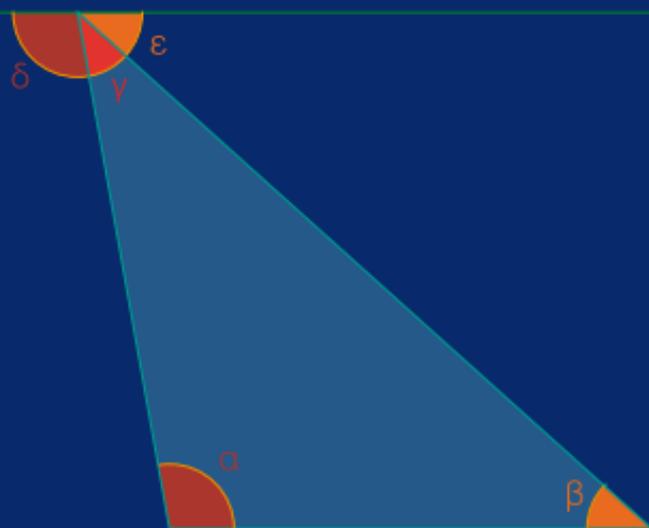
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

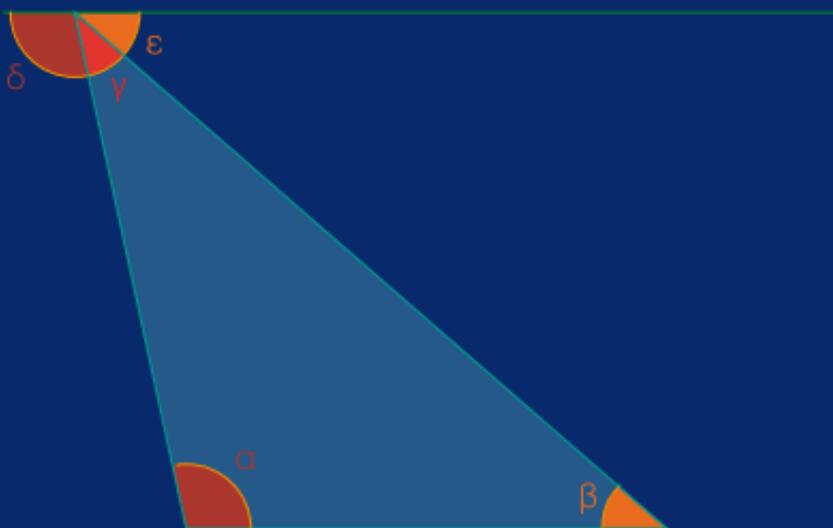
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

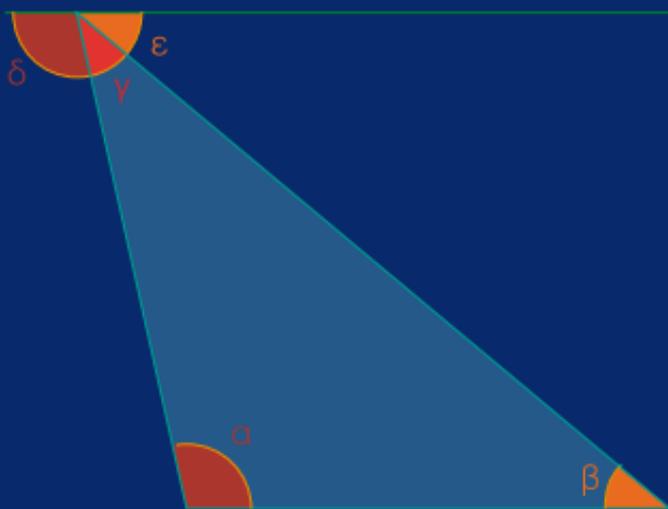
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

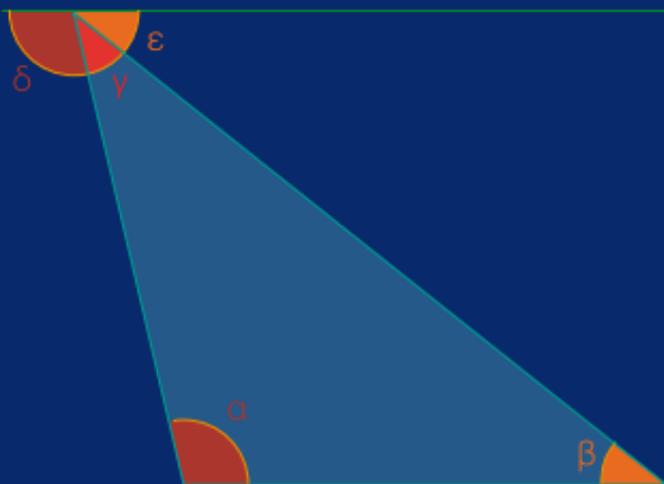
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

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





## Die Winkelsumme im Dreieck

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





## Die Winkelsumme im Dreieck

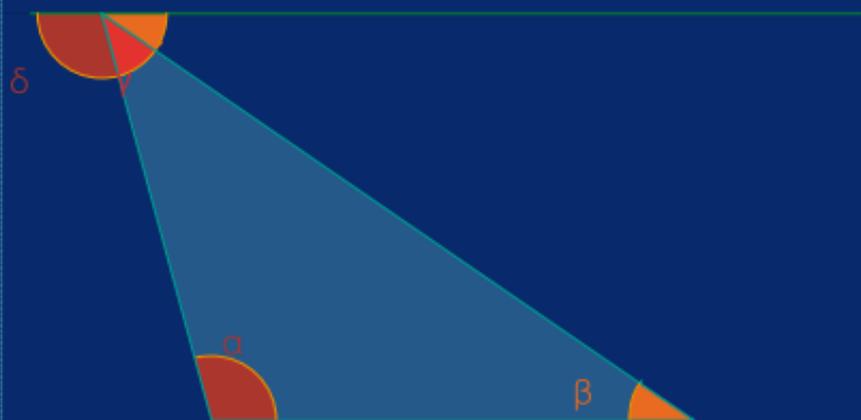
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

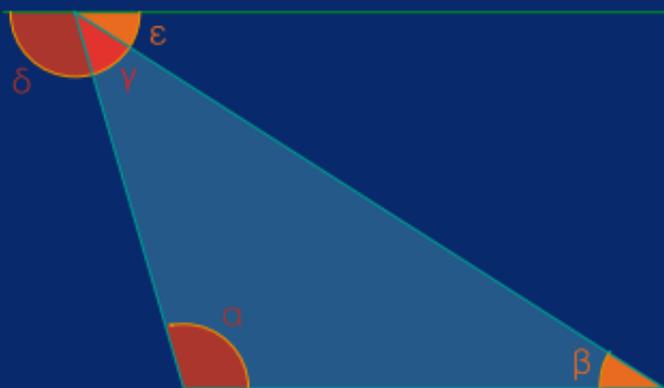
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

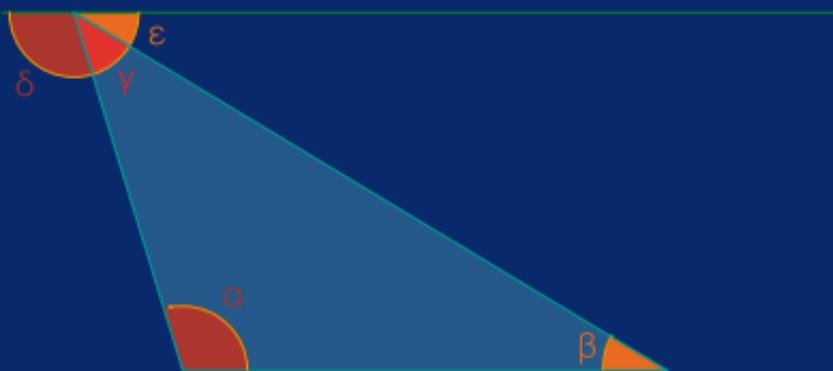
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

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





## Die Winkelsumme im Dreieck

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





## Die Winkelsumme im Dreieck

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





## Die Winkelsumme im Dreieck

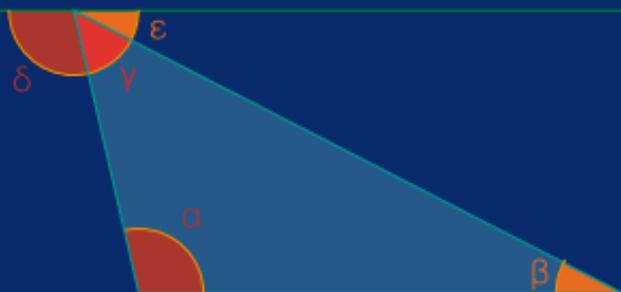
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

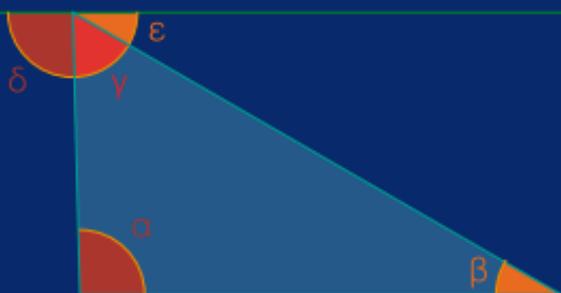
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

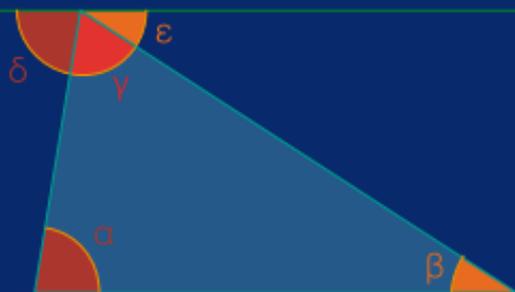
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

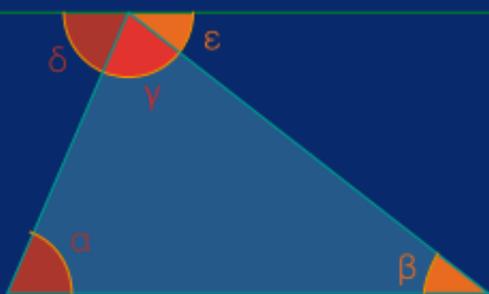
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

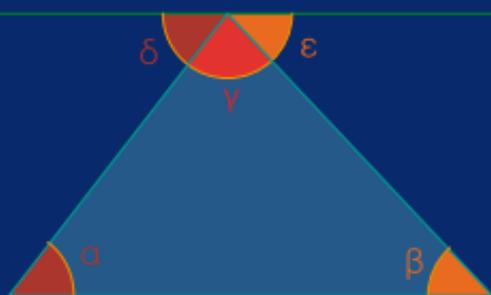
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

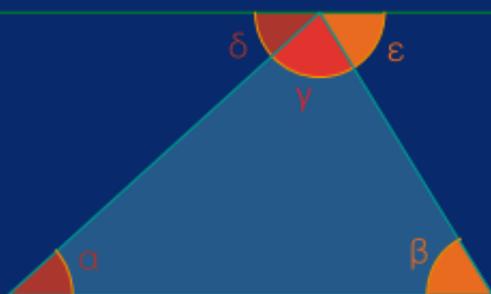
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

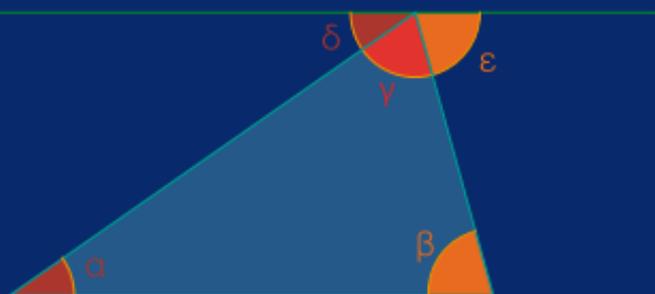
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

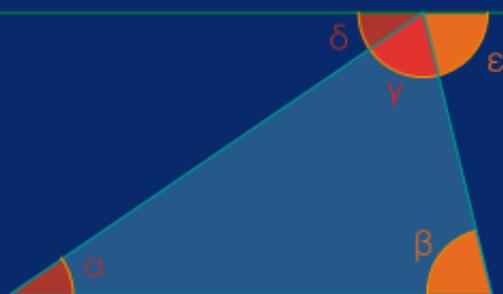
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

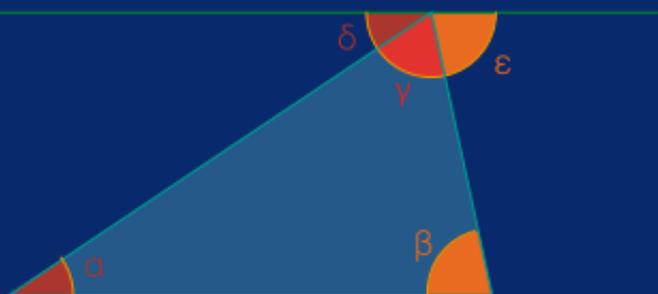
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

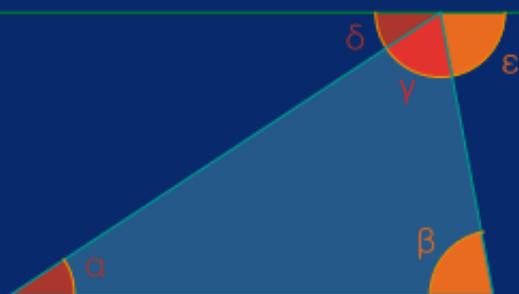
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

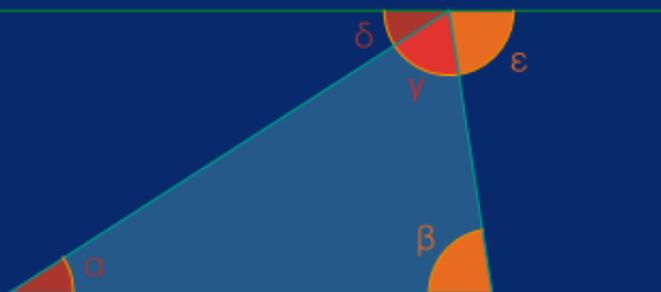
$$\alpha + \beta + \gamma = 180^\circ$$





## Die Winkelsumme im Dreieck

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



# Mathematik?

## Spiel!

### realisierte Daumenkinos

- Scheitel-, Neben-, Wechsel-, Stufen-, Basiswinkel
- Winkelsumme im Dreieck
- Thaleskreis (Euklid, Elemente, Buch III)
- Pythagoras, Zerlegung (Euklid, Elemente, Buch I)
- Kathetensatz (Euklid, Elemente, Buch I)
- Höhensatz (Euklid, Elemente, Buch VI u. Buch II)
- Schnitte durch den Würfel
- Verfolgungskurve
- Mönchchen des Hippokrates von Chios
- Ellipse im Kreis
- $(a + b + c + \dots)^2$
- Hinged Tessellation

### Daumenkinos in Planung

- Ellipse, Parabel, Hyperbel
- Hexe der Agnesi
- Satz von Morley
- Sinus
- Satz von Ceva
- Dreiecksgeometrie, Eulergerade
- von der Sekante zur Tangente
- Riemannsches Integral
- Flächenverwandlung
- Sprachspiele
- von 0 bis 100
- ...