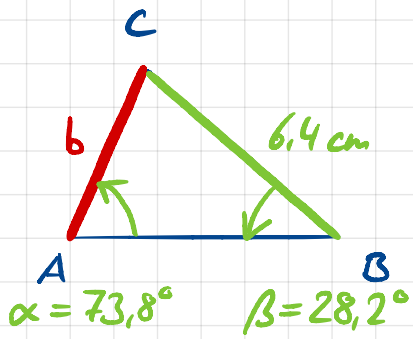
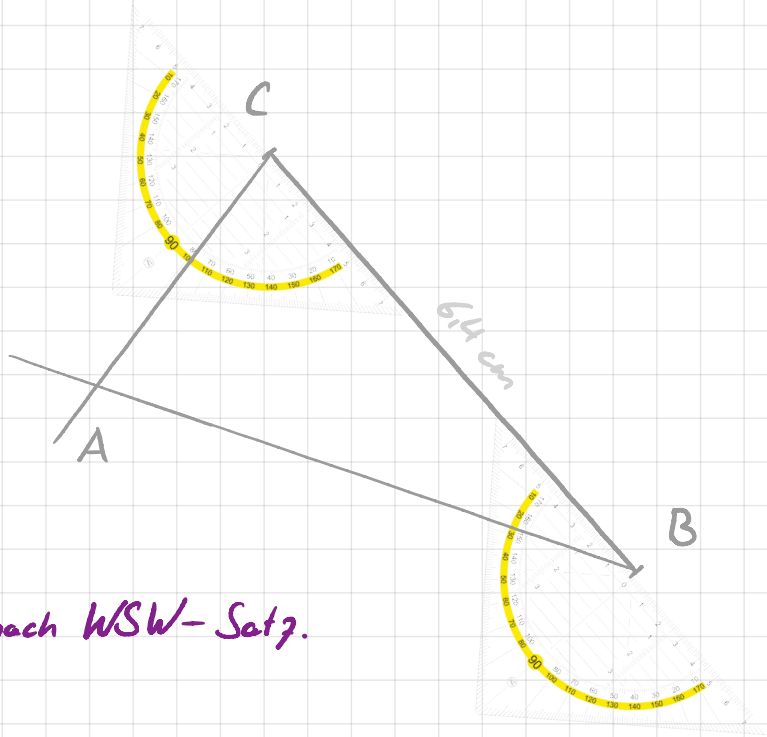
WESTERMANN Mathematik 10II/III, **75/6**

6 Zeichne das Dreieck ABC und berechne die fehlenden Seitenlängen und Winkelmaße.

a)	b)	c)	d)	e)	f)
a = 6,4 cm	b = 7,2 cm	b = 9,5 cm	a = 6,0 cm	b = 8,0 cm	b = 8,0 cm
α = 73,8°	c = 4,8 cm	α = 36,2°	c = 8,5 cm	c = 10,0 cm	c = 10,0 cm
β = 28,2°	β = 115,2°	γ = 53,8°	α = 40°	β = 45,0°	β = 60,0°

a) Skizze





Konstruktion ist eindeutig nach WSW-Satz.

- $\dfrac{b}{\sin 28{,}2°} = \dfrac{6{,}4\,\text{cm}}{\sin 73{,}8°}$ $\quad | \cdot \sin 28{,}2°$

$$b = \frac{6{,}4\,\text{cm}}{\sin 73{,}8°} \cdot \sin 28{,}2° = \underline{3{,}15\,\text{cm}}$$

- $\gamma = 180° - 73{,}8° - 28{,}2° = \underline{78°}$

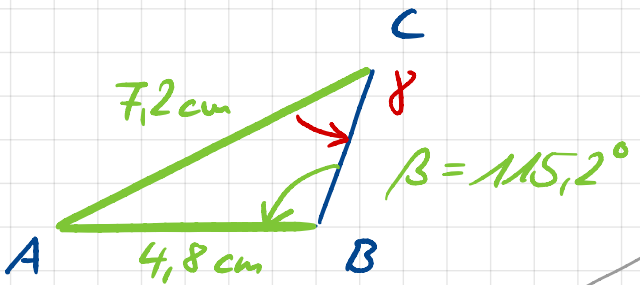
- $\dfrac{c}{\sin 78°} = \dfrac{6{,}4\,\text{cm}}{\sin 73{,}8°}$ $\quad | \cdot \sin 78°$

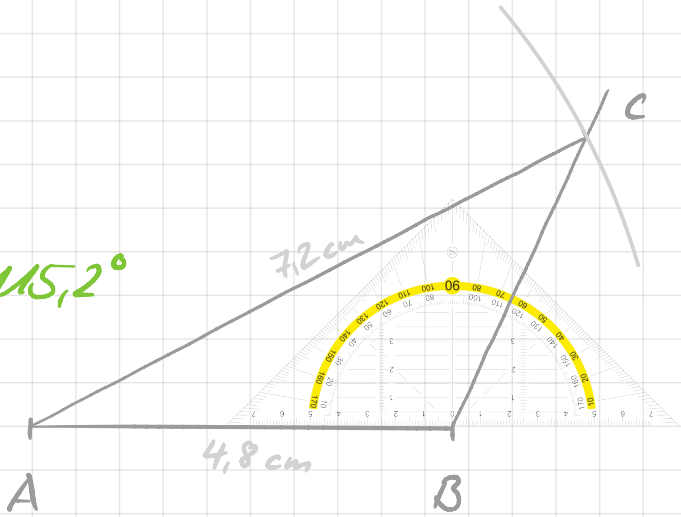
$$c = \frac{6{,}4\,\text{cm}}{\sin 73{,}8°} \cdot \sin 78° = \underline{6{,}52\,\text{cm}}$$

6 – Zeichne das Dreieck ABC und berechne die fehlenden Seitenlängen und Winkelmaße.

a)	b)	c)	d)	e)	f)
a = 6,4 cm	b = 7,2 cm	b = 9,5 cm	a = 6,0 cm	b = 8,0 cm	b = 8,0 cm
α = 73,8°	c = 4,8 cm	α = 36,2°	c = 8,5 cm	c = 10,0 cm	c = 10,0 cm
β = 28,2°	β = 115,2°	γ = 53,8°	α = 40°	β = 45,0°	β = 60,0°

b) Skizze:





Konstruktion eindeutig nach SsW-Satz.

- $\frac{\sin\gamma}{4{,}8\,\text{cm}} = \frac{\sin 115{,}2°}{7{,}2\,\text{cm}} \quad | \cdot 4{,}8\,\text{cm} \quad | \sin^{-1}$

$$\gamma = \sin^{-1}\left(\frac{\sin 115{,}2°}{7{,}2\,\text{cm}} \cdot 4{,}8\,\text{cm}\right) = \underline{37{,}10°}$$

- $\alpha = 180° - 115{,}2° - 37{,}1° = \underline{27{,}7°}$

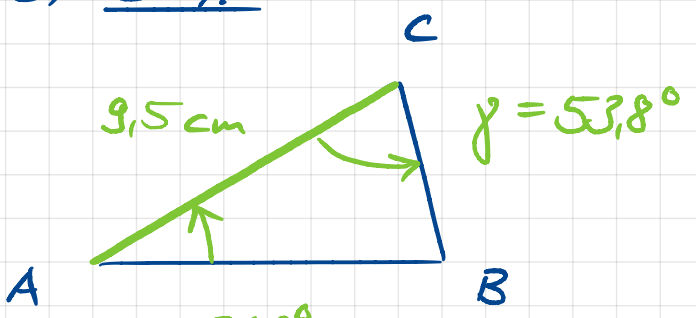
- $\frac{a}{\sin 27{,}7°} = \frac{7{,}2\,\text{cm}}{\sin 115{,}2°} \quad | \cdot \sin 27{,}7°$

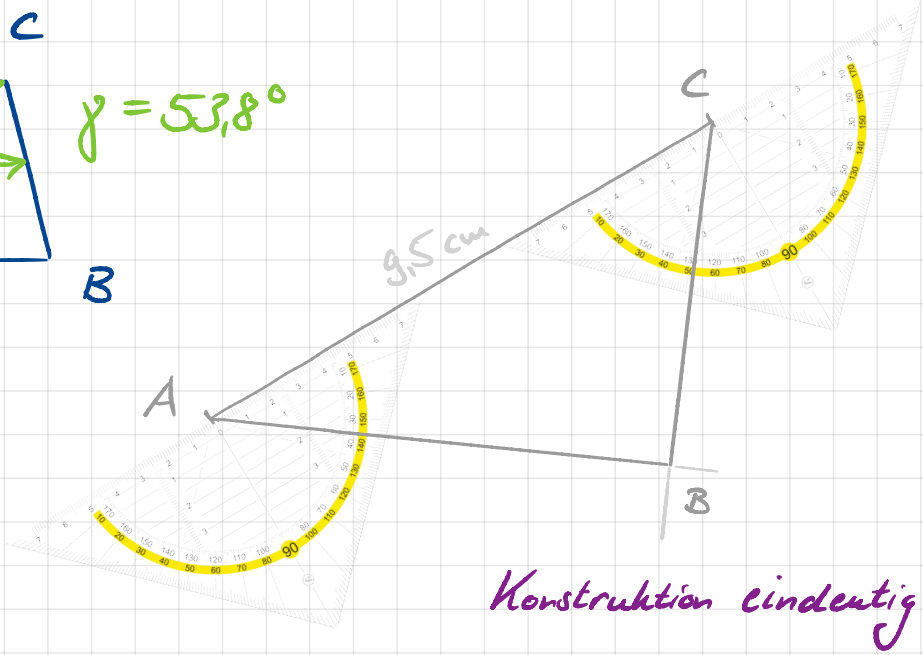
$$a = \frac{7{,}2\,\text{cm}}{\sin 115{,}2°} \cdot \sin 27{,}7° = \underline{3{,}70\,\text{cm}}$$

6 Zeichne das Dreieck ABC und berechne die fehlenden Seitenlängen und Winkelmaße.

a)	b)	c)	d)	e)	f)
a = 6,4 cm	b = 7,2 cm	b = 9,5 cm	a = 6,0 cm	b = 8,0 cm	b = 8,0 cm
α = 73,8°	c = 4,8 cm	α = 36,2°	c = 8,5 cm	c = 10,0 cm	c = 10,0 cm
β = 28,2°	β = 115,2°	γ = 53,8°	α = 40°	β = 45,0°	β = 60,0°

c) Skizze





Konstruktion eindeutig nach WSW-Satz.

- $\beta = 180° - (36{,}2° + 53{,}8°) = \underline{90°}$

- $\frac{c}{\sin 53{,}8°} = \frac{9{,}5\,cm}{\sin 90°} \quad | \cdot \sin 53{,}8°$

$$c = \frac{9{,}5\,cm}{\sin 90°} \cdot \sin 53{,}8° = \underline{7{,}67\,cm}$$

- $\frac{a}{\sin 36{,}2°} = \frac{9{,}5\,cm}{\sin 90°} = \frac{7{,}67\,cm}{\sin 53{,}8°} \quad | \cdot \sin 36{,}2°$

$$a = \frac{9{,}5\,cm}{\sin 90°} \cdot \sin 36{,}2° = \underline{5{,}61\,cm}$$