

Sinussatz und Kosinussatz

Mathematik · Klasse 10 · mittel

Name: _____ Datum: _____

Sinussatz: $a : \sin \alpha = b : \sin \beta = c : \sin \gamma$. Kosinussatz: $c^2 = a^2 + b^2 - 2ab \cdot \cos \gamma$.

1 Sinussatz

- a) $\alpha = 50^\circ$, $\beta = 65^\circ$, $a = 17$ cm.

$$b = a \cdot \sin \beta : \sin \alpha = 17 \cdot \sin 65^\circ : \sin 50^\circ = 20,11 \text{ cm}$$

- b) $\alpha = 70^\circ$, $\beta = 65^\circ$, $a = 7$ cm.

- c) $\alpha = 40^\circ$, $\beta = 55^\circ$, $a = 17$ cm.

- d) $\alpha = 70^\circ$, $\beta = 55^\circ$, $a = 15$ cm.

- e) $\alpha = 30^\circ$, $\beta = 45^\circ$, $a = 15$ cm.

2 Kosinussatz: Seite

- a) $a = 4$ cm, $b = 4$ cm, $\gamma = 60^\circ$. $c =$

$$c^2 = 4^2 + 4^2 - 2 \cdot 4 \cdot 4 \cdot \cos 60^\circ = 16,00 \rightarrow c = 4,00 \text{ cm}$$

- b) $a = 6$ cm, $b = 9$ cm, $\gamma = 100^\circ$. $c =$

- c) $a = 11$ cm, $b = 10$ cm, $\gamma = 60^\circ$. $c =$

- d) $a = 7$ cm, $b = 4$ cm, $\gamma = 70^\circ$. $c =$

- e) $a = 15$ cm, $b = 15$ cm, $\gamma = 60^\circ$. $c =$

3 Kosinussatz: Winkel

- a) $a = 7$ cm, $b = 4$ cm, $c = 7$ cm. $\gamma =$

$$\cos \gamma = (a^2 + b^2 - c^2) : (2ab) = 0,286 \rightarrow \gamma = 73,4^\circ$$

Sinussatz und Kosinussatz (Fortsetzung)

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Name: _____ Datum: _____

b) $a = 7 \text{ cm}$, $b = 10 \text{ cm}$, $c = 8 \text{ cm}$. $\gamma =$

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c) $a = 8 \text{ cm}$, $b = 9 \text{ cm}$, $c = 8 \text{ cm}$. $\gamma =$

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d) $a = 8 \text{ cm}$, $b = 8 \text{ cm}$, $c = 2 \text{ cm}$. $\gamma =$

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e) $a = 6 \text{ cm}$, $b = 12 \text{ cm}$, $c = 8 \text{ cm}$. $\gamma =$

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