

Discovering the Sum and Difference Trig Identities

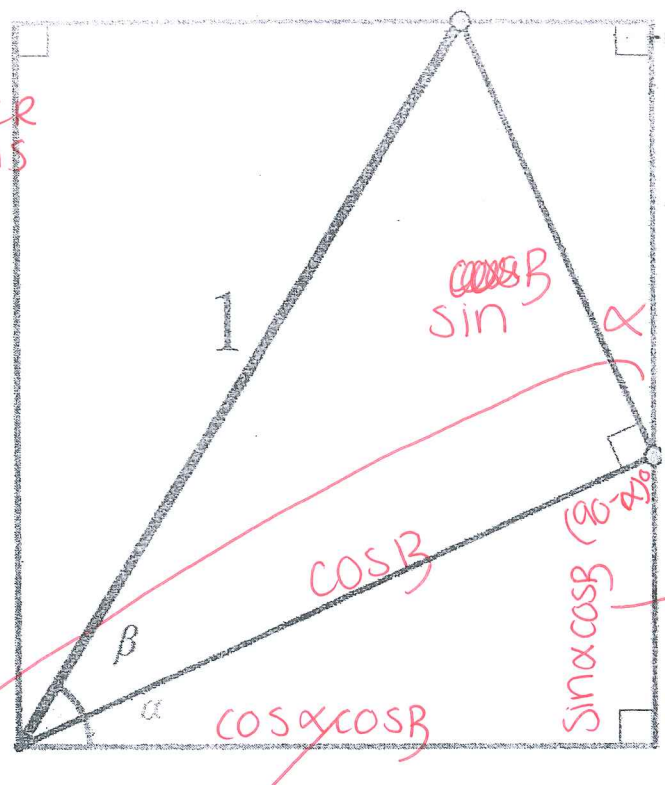
Directions: Find the length of every side of every triangle in this diagram in terms of the two angles α and β .

**WICST NOT DONE UNTIL YOU ANSWER THIS*

What can you determine about $\sin(\alpha + \beta)$ and $\cos(\alpha + \beta)$?

Word bank:

- $\sin \beta$ α
- $\cos \beta$ $90 - \alpha$
- $\sin \alpha \cos \beta$ $90 - \beta$
- $\cos \alpha \cos \beta$ $\alpha + \beta$
- $\sin(\alpha + \beta)$
- $\cos(\alpha + \beta)$
- $\sin \alpha \sin \beta$
- $\cos \alpha \sin \beta$



Notes from class 3/8

$$180^\circ = 90^\circ + (90 - \alpha)^\circ + \text{---}$$

$$90 + 90 - \alpha + \text{---}$$

$$\text{---} = \alpha$$

$$\sin \alpha = \frac{x}{\cos \beta}$$

$$x = \sin \alpha \cos \beta$$

$$\cos \alpha = \frac{x}{\cos \beta}$$

$$x = \cos \alpha \cos \beta$$