

Study Guide

Given that $\frac{3\pi}{2} < \alpha$ and $\beta < 2\pi$ and $\sin \alpha = \frac{4}{5}$ and $\cos \beta = \frac{15}{17}$ find:

1. $\cos(\alpha)$

2. $\sin(\beta)$

3. $\sin(\alpha + \beta)$

4. $\cos(\alpha - \beta)$

Verify the following.

5. $\cos^2 x (1 + \tan^2 x) = 1$

6. $1 + \sec^2 \theta \sin^2 \theta = \sec^2 \theta$

7. $\frac{1}{1 - \cos \mu} - \frac{1}{1 + \cos \mu} = 2 \csc \mu \cot \mu$

8. $\frac{\sin \alpha}{\sin \alpha - \cos \alpha} = \frac{1}{1 - \cot \alpha}$

Use sum/difference formulas to find the exact value of the following:

9. $\cos 75^\circ = \cos(120^\circ - 45^\circ)$

10. $\sin 60^\circ = \sin(210^\circ - 150^\circ)$

Write as the sin, cos, or tan of a single angle.

11. $\sin 70^\circ \cos 40^\circ - \cos 70^\circ \sin 40^\circ$

12. $\cos 210^\circ \cos 80^\circ + \sin 210^\circ \sin 80^\circ$