

Verify.

1. $1 + \cos 2\theta = \frac{2}{1 + \tan^2 \theta}$

2. $\csc x \sec x = 2 \csc 2x$

3. $\frac{1 - \tan^2 \theta}{1 + \tan^2 \theta} = \cos 2\theta$

4. $\sin 2x (\cot x + \tan x) = 2$

5. $\cos(\alpha + \beta) \cos(\alpha - \beta) = 1 - \sin^2 \alpha - \sin^2 \beta$

6. $\frac{1}{2} \sin 2\theta = \frac{\tan \theta}{1 + \tan^2 \theta}$

$$7. \frac{\cos(\alpha - \beta)}{\cos \alpha \sin \beta} = \tan \alpha + \cot \beta$$

$$8. (\sin \alpha + \cos \alpha)^2 = \sin 2\alpha + 1$$

$$9. \frac{2 \cos 2x}{\sin 2x} = \cot x - \tan x$$

$$10. \sin 2\theta = \frac{2 \tan \theta}{1 + \tan^2 \theta}$$