

Proofs With Double-Angles

Verify each identity.

1) $\sin 2x + 1 - \cos 2x = 2\sin x \cdot (\sin x + \cos x)$

2) $\frac{1}{\csc^2 x} = \cos^2 x - \cos 2x$

3) $\frac{2\cos^2 x}{\csc^2 x} = \sin^2 x(1 + \cos 2x)$

$$4) \frac{1 + \cos 2x}{\sin^2 x} = \frac{2}{\tan^2 x}$$

$$5) \frac{\sin 2x}{\csc^2 x} = 2\sin^3 x \cos x$$

$$6) \frac{2\sin x \cos x}{\cot x} = \tan x \sin 2x$$

$$7) \frac{\sin 4x}{\sin 2x} = 2\cos 2x$$