

Warm Up

Prove the following identity:

$$\frac{\sin^2 2\theta}{\cos \theta} \cdot \csc^2 \theta = \frac{4}{\sec \theta}$$

$$\frac{(2\sin\theta\cos\theta)(2\sin\theta\cos\theta)}{\cos\theta} \cdot \frac{1}{\sin^2\theta}$$

$$\frac{4\cancel{\sin^2\theta}\cancel{\cos^2\theta}}{\cancel{\sin^2\theta}\cancel{\cos\theta}}$$

$$\boxed{4\cos\theta}$$

$$4 \div \frac{1}{\cos\theta}$$

$$4 \times \cos\theta$$

$$\boxed{4\cos\theta}$$

Questions from Homework

$$\begin{aligned} \textcircled{3} \quad \boxed{\sin(x+y)} \boxed{\sin(x-y)} &= \cos^2 y - \cos^2 x \\ (\sin x \cos y + \cos x \sin y) (\sin x \cos y - \cos x \sin y) & \left| \cos^2 y - \cos^2 x \right. \\ \underline{\sin^2 x \cos^2 y} - \cos^2 x \underline{\sin^2 y} & \\ (1 - \cos^2 x) \cos^2 y - \cos^2 x (1 - \cos^2 y) & \\ \cos^2 y - \cancel{\cos^2 x \cos^2 y} - \cos^2 x + \cancel{\cos^2 x \cos^2 y} & \\ \cos^2 y - \cos^2 x & \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad \cos \theta (1 - \boxed{\cos^2 \theta}) &= \sin \theta \boxed{\sin^2 \theta} \\ \cos \theta (1 - (\cos^2 \theta - \sin^2 \theta)) & \left| \sin \theta (2 \sin \theta \cos \theta) \right. \\ \cos \theta (1 - \cos^2 \theta + \sin^2 \theta) & \quad 2 \sin^2 \theta \cos \theta \\ \cos \theta (\sin^2 \theta + \sin^2 \theta) & \\ \cos \theta (2 \sin^2 \theta) & \\ 2 \sin^2 \theta \cos \theta & \end{aligned}$$

$$\begin{aligned} \cos \theta - \cos^3 \theta + \underline{\sin^2 \theta \cos \theta} & \\ \cos \theta - \cos^3 \theta + (1 - \cos^2 \theta) \cos \theta & \\ \cos \theta - \cos^3 \theta + \cos \theta - \cos^3 \theta & \\ 2 \cos \theta - 2 \cos^3 \theta & \\ 2 \cos \theta (1 - \cos^2 \theta) & \\ 2 \cos \theta (\sin^2 \theta) & \end{aligned}$$

$$\textcircled{4} \quad \boxed{\sin(x-y)} + \boxed{\cos(x+y)} = (\cos x + \sin x)(\cos y - \sin y)$$

$$\begin{array}{l} \sin x \cos y - \cos x \sin y + \cos x \cos y - \sin x \sin y \\ \hline \cos x \cos y - \sin y \cos x + \sin x \cos y - \sin x \sin y \\ \hline \sin x \cos y - \cos x \sin y + \cos x \cos y - \sin x \sin y \end{array}$$

Finish Review for Homework