

Exercise 149

For the following exercises, verify that each equation is an identity.

$$\frac{\sin t}{\csc t} + \frac{\cos t}{\sec t} = 1$$

Solution

$$\frac{\sin t}{\csc t} + \frac{\cos t}{\sec t} \stackrel{?}{=} 1$$

$$\frac{\sin t}{\left(\frac{1}{\sin t}\right)} + \frac{\cos t}{\left(\frac{1}{\cos t}\right)} \stackrel{?}{=} 1$$

$$\sin^2 t + \cos^2 t \stackrel{?}{=} 1$$

$$1 = 1$$

This is a true statement, so the identity is verified.