

**Activity - Using Basic Trigonometric Identities**

Use the quotient and reciprocal identities to simplify the given expression.

1.  $\cot t \sin t$

3.  $\csc t \sin t$

2.  $\tan t \cot t$

4.  $\cot t \sec t$

Use the Pythagorean identities to simplify the given expression.

5.  $\sin^2 t + \cot^2 t \sin^2 t$

7.  $\frac{\csc^2 t - \cot^2 t}{\sin^2 t}$

6.  $1 - \sec^2 t$

8.  $\frac{\sin^2 t - \cos^2 t \sin^2 t}{\sin^2 t}$

For the following exercises,  $\sin t = 3/5$ . Use the cofunction identities and the even/odd identities to evaluate each trigonometric function.

9.  $\sin(-t)$

11.  $\sin\left(\frac{P}{2} - t\right)$

10.  $\sin\left(\frac{P}{2} - t\right)$

12.  $\tan(-t)$

Use identities and algebra to simplify the expression.

13.  $(\sin t + \cos t)(\sin t - \cos t)$

16.  $\frac{\cos^2 t + 4 \cos t + 4}{\cos t + 2}$

14.  $\frac{\sin t}{\tan t}$

17.  $\frac{1}{\cos t} - \sin t \tan t$

15.  $\left(\frac{4 \cos^2 t}{\sin^2 t}\right) \left(\frac{\sin t}{4 \cos t}\right)^2$