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Unit Test - Precalculus  
Trig Identities

Simplify expressions using trig identities:

1.  $\tan t \cot t$

$\cancel{\tan t} \cdot \frac{1}{\cancel{\tan t}} = 1$

4.  $\frac{\sin^2 t - 4 \sin t + 4}{\sin t - 2}$   
 $\frac{(\sin t - 2)(\sin t - 2)}{\sin t - 2}$   
 $\frac{(\sin t - 2)^2}{\sin t - 2}$

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

$\sin^2 t$

5.  $\frac{1}{\cos t} - \sin t \tan t$   
 $\frac{1}{\cos t} - \frac{\sin^2 t}{\cos t}$   
 $\frac{1 - \sin^2 t}{\cos t} = \frac{\cos^2 t}{\cos t}$   
 $\cos t$

3.  $\frac{\sin t}{\tan t}$   
 $\frac{\sin t}{\frac{\sin t}{\cos t}} = \cos t$

6.  $1 - \sec^2 t$   
 $\tan^2 t + 1 = \sec^2 t$   
 $1 = \sec^2 t - \tan^2 t$   
 $1 - \sec^2 t = -\tan^2 t$

Give exact values:

7.  $\cos \frac{47\pi}{2}$

$\cos \frac{\pi}{2}$

0

10.  $\cos \frac{-\pi}{6}$

$\frac{\sqrt{3}}{2}$

8.  $\tan \frac{8\pi}{3}$

$-\sqrt{3}$

11.  $\sec \frac{2\pi}{3}$

-2

9.  $\sin \frac{-7\pi}{4}$

$\frac{\sqrt{2}}{2}$

12.  $\sin \frac{-11\pi}{6}$

$\frac{1}{2}$