NAME _____ DATE _____ PERIOD _____

Practice

Sum and Difference Identities

Use sum or difference identities to find the exact value of each trigonometric function.

1. $\cos \frac{5\pi}{12}$

2. $\sin(-165°)$

3. $\tan 345°$

4. $\csc 915°$

5. $\tan\left(-\frac{7\pi}{12}\right)$

6. $\sec \frac{\pi}{12}$

Find each exact value if $0 < x < \frac{\pi}{2}$ and $0 < y < \frac{\pi}{2}$.

7. $\cos(x + y)$ if $\sin x = \frac{5}{13}$ and $\sin y = \frac{4}{5}$

8. $\sin(x - y)$ if $\cos x = \frac{8}{17}$ and $\cos y = \frac{3}{5}$

9. $\tan(x - y)$ if $\csc x = \frac{13}{5}$ and $\cot y = \frac{4}{3}$

Verify that each equation is an identity.

10. $\cos(180° - \theta) = -\cos\theta$

11. $\sin(360° + \theta) = \sin\theta$

12. ***Physics*** Sound waves can be modeled by equations of the form $y = 20\sin(3t + \theta)$. Determine what type of interference results when sound waves modeled by the equations $y = 20\sin(3t + 90°)$ and $y = 20\sin(3t + 270°)$ are combined. (*Hint:* Refer to the application in Lesson 7-3.)