5-4 Sum and Difference Identities

Find the exact value of each trigonometric expression.

1. cos 75°

ANSWER:

$\frac{\sqrt{6}-\sqrt{2}}{4}$

2. sin (–210°)

ANSWER:

$\frac{1}{2}$

3. sin $\frac{11\pi}{12}$

ANSWER:

$\frac{\sqrt{6}-\sqrt{2}}{4}$

4. cos $\frac{17\pi}{12}$

ANSWER:

$\frac{\sqrt{2}-\sqrt{6}}{4}$

5. tan $\frac{23\pi}{12}$

ANSWER:

$-2+\sqrt{3}$

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

ANSWER:

$2-\sqrt{3}$

5-4 Sum and Difference Identities

Find the exact value of each expression.

12. $\cos \frac{5\pi}{12} \cos \frac{\pi}{4} + \sin \frac{5\pi}{12} \sin \frac{\pi}{4}$

ANSWER:

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

14. $\sin \frac{\pi}{3} \cos \frac{\pi}{12} - \cos \frac{\pi}{3} \sin \frac{\pi}{12}$

ANSWER:

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

16. $\frac{\tan 48° + \tan 12°}{1 - \tan 48° \tan 12°}$

ANSWER:

$\sqrt{3}$

Simplify each expression.

18. $\cos \frac{\pi}{2} \cos x + \sin \frac{\pi}{2} \sin x$

ANSWER:

$\sin x$

20. $\cos 2x \sin x - \sin 2x \cos x$

ANSWER:

$-\sin x$

22. $\frac{\tan 5\theta + \tan \theta}{\tan 5\theta \tan \theta - 1}$

ANSWER:

$-\tan 6\theta$