

# Chapter 14

## 14.1 Graph the function.

1.  $y = \cos \frac{1}{4}x$       2.  $y = 3 \sin x$       3.  $y = \sin 2\pi x$       4.  $y = 2 \tan 2x$

## 14.2 Graph the sine or cosine function.

5.  $y = \sin 2\left(x - \frac{\pi}{4}\right) + 1$       6.  $y = -\sin\left(x + \frac{\pi}{4}\right)$       7.  $y = 2 \cos x + 3$

## 14.2 Graph the tangent function.

8.  $y = 2 \tan x + 2$       9.  $y = -\frac{1}{4} \tan 2x$       10.  $y = \tan\left(x - \frac{\pi}{2}\right) - 1$

## 14.3 Simplify the expression.

11.  $\cos^2\left(\frac{\pi}{2} - x\right) + \cos^2(-x)$       12.  $\frac{(\sec x - 1)(\sec x + 1)}{\tan x}$       13.  $\tan\left(\frac{\pi}{2} - x\right) \cot x - \csc^2 x$

## 14.3 Verify the identity.

14.  $\frac{\cos(-x)}{1 + \sin(-x)} = \sec x + \tan x$       15.  $\frac{\cos^2 x + \sin^2 x}{\tan^2 x + 1} = \cos^2 x$       16.  $2 - \sec^2 x = 1 - \tan^2 x$

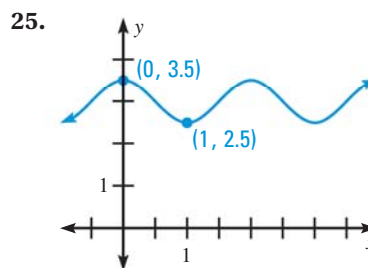
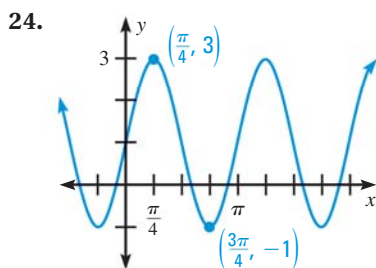
## 14.4 Find the general solution of the equation.

17.  $12 \tan^2 x - 4 = 0$       18.  $3 \sin x = -2 \sin x + 3$       19.  $\tan^2 x - 2 \tan x = -1$

## 14.4 Solve the equation in the given interval. Check your solutions.

20.  $\cos^2 x \sin x = 5 \sin x$ ;  $0 \leq x < 2\pi$       21.  $2 - 2 \cos^2 x = 3 + 5 \sin x$ ;  $0 \leq x < 2\pi$   
 22.  $8 \cos x = 4 \sec x$ ;  $0 \leq x < \pi$       23.  $\cos^2 x - 4 \cos x + 1 = 0$ ;  $0 \leq x < \pi$

## 14.5 Write a function for the sinusoid.



## 14.6 Find the exact value of the expression.

26.  $\sin(-15^\circ)$       27.  $\cos 165^\circ$       28.  $\tan \frac{11\pi}{12}$       29.  $\cos \frac{\pi}{12}$

## 14.7 Find the exact values of $\sin 2a$ , $\cos 2a$ , and $\tan 2a$ .

30.  $\tan a = \frac{2}{3}$ ,  $\pi < a < \frac{3\pi}{2}$       31.  $\cos a = \frac{9}{10}$ ,  $0 < a < \frac{\pi}{2}$       32.  $\sin a = -\frac{3}{5}$ ,  $\frac{3\pi}{2} < a < 2\pi$

## 14.7 Find the general solution of the equation.

33.  $\cos 2x - \cos x = 0$       34.  $\cos \frac{x}{2} = \sin x$       35.  $\sin 2x = -1$