

## Exercises 8.2

In Exercises 1–14, find the exact functional value without using a calculator.

1.  $\sin^{-1}1$

2.  $\cos^{-1}0$

3.  $\tan^{-1}(-1)$

4.  $\sin^{-1}(-1)$

5.  $\cos^{-1}1$

6.  $\tan^{-1}1$

7.  $\tan^{-1}\frac{\sqrt{3}}{3}$

8.  $\cos^{-1}\frac{\sqrt{3}}{2}$

9.  $\sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)$

10.  $\sin^{-1}\frac{\sqrt{3}}{2}$

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In Exercises 15–24, use a calculator in radian mode to approximate the functional value.

15.  $\sin^{-1}0.35$

16.  $\cos^{-1}0.76$

17.  $\tan^{-1}(-3.256)$

18.  $\sin^{-1}(-0.795)$

19.  $\sin^{-1}(\sin 7)$  *Hint: the answer is not 7.*

20.  $\cos^{-1}(\cos 3.5)$

21.  $\tan^{-1}[\tan(-\frac{4}{3})]$

22.  $\sin^{-1}[\sin(-2)]$

23.  $\cos^{-1}[\cos(-8.5)]$

24.  $\tan^{-1}(\tan 12.4)$

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In Exercises 27–42, find the exact functional value without using a calculator.

27.  $\sin^{-1}(\cos 0)$

28.  $\cos^{-1}\left(\sin \frac{\pi}{6}\right)$

29.  $\cos^{-1}\left(\sin \frac{4\pi}{3}\right)$

30.  $\tan^{-1}(\cos \pi)$

31.  $\sin^{-1}\left(\cos\frac{7\pi}{6}\right)$

32.  $\cos^{-1}\left(\tan\frac{7\pi}{4}\right)$

33.  $\sin^{-1}\left(\sin\frac{2\pi}{3}\right)$

34.  $\cos^{-1}\left(\cos\frac{5\pi}{4}\right)$

35.  $\cos^{-1}\left[\cos\left(-\frac{\pi}{6}\right)\right]$

36.  $\tan^{-1}\left[\tan\left(-\frac{4\pi}{3}\right)\right]$

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 $37. \sin\left[\cos^{-1}\left(\frac{3}{5}\right)\right]$  (See Example 6.)

$38. \tan\left[\sin^{-1}\left(\frac{3}{5}\right)\right]$

$39. \cos\left[\tan^{-1}\left(-\frac{3}{4}\right)\right]$

40.  $\cos\left[\sin^{-1}\left(\frac{\sqrt{3}}{5}\right)\right]$

41.  $\tan\left[\sin^{-1}\left(\frac{5}{13}\right)\right]$

42.  $\sin\left[\cos^{-1}\left(\frac{\sqrt{5}}{13}\right)\right]$

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In Exercises 43–46, write the expression as an algebraic expression in  $v$ , as in Example 4.

43.  $\cos(\sin^{-1}v)$

44.  $\cot(\cos^{-1}v)$

45.  $\tan(\sin^{-1}v)$