

Find the exact value of the expression.

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

A) $\frac{3\pi}{4}$

B) $\frac{\pi}{3}$

C) $\frac{2\pi}{3}$

D) $\frac{\pi}{4}$

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

A) $\frac{11\pi}{6}$

B) $-\frac{\pi}{6}$

C) $-\frac{\pi}{4}$

D) $\frac{\pi}{6}$

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

A) $\frac{7\pi}{4}$

B) $\frac{11\pi}{6}$

C) $\frac{\pi}{6}$

D) $\frac{\pi}{4}$

4) $\cos^{-1} \left(-\frac{\sqrt{3}}{2} \right)$

A) $-\frac{3\pi}{4}$

B) $\frac{\pi}{6}$

C) $\frac{5\pi}{6}$

D) $\frac{2\pi}{3}$

5) $\tan^{-1} \sqrt{3}$

A) $\frac{\pi}{3}$

B) $\frac{\pi}{6}$

C) $\frac{3\pi}{4}$

D) $\frac{5\pi}{4}$

6) $\tan^{-1}(-1)$

A) $-\frac{\pi}{4}$

B) $\frac{7\pi}{4}$

C) $\frac{\pi}{4}$

D) $\frac{5\pi}{4}$

Find the exact value, if any, of the composite function. If there is no value, say it is "not defined". Do not use a calculator.

7) $\sin[\sin^{-1}(-0.3)]$

A) -0.3

B) 0.3

C) 2.8

D) not defined

8) $\tan(\tan^{-1}(-9.6))$

A) 12.7

B) -9.6

C) 9.6

D) not defined

9) $\cos[\cos^{-1}(-8)]$

A) 8

B) 1

C) -8

D) not defined

10) $\sin(\sin^{-1} 1.9)$

A) 1.9

B) 0.9

C) -1.9

D) not defined

Find the exact value of the expression. Do not use a calculator.

11) $\cos^{-1}\left[\cos\left(-\frac{\pi}{4}\right)\right]$

A) $\frac{\pi}{4}$

B) $\frac{5\pi}{4}$

C) $-\frac{\pi}{4}$

D) $\frac{3\pi}{4}$

12) $\tan^{-1}\left[\tan\left(-\frac{\pi}{6}\right)\right]$

A) $\frac{5\pi}{6}$

B) $\frac{\pi}{6}$

C) $\frac{7\pi}{6}$

D) $-\frac{\pi}{6}$

13) $\sin^{-1}\left[\sin\left(-\frac{\pi}{3}\right)\right]$

A) $\frac{2\pi}{3}$

B) $\frac{4\pi}{3}$

C) $\frac{\pi}{3}$

D) $-\frac{\pi}{3}$

Find the exact solution of the equation.

14) $\cos^{-1} x = 0$

A) $x = \pi$

B) $x = -1$

C) $x = 0$

D) $x = 1$

15) $\sin^{-1} x = \frac{\pi}{2}$

A) $x = 0$

B) $x = 1$

C) $x = -1$

D) $x = \pi$

Find the exact value, if any, of the composite function. If there is no value, say it is "not defined". Do not use a calculator.

16) $\cos[\cos^{-1}(-1.3)]$

A) 0.3

B) 1.3

C) -1.3

D) not defined

17) $\sin\left(\sin^{-1}\frac{8}{11}\right)$

A) $\frac{1}{11}$

B) $\frac{3}{11}$

C) $\frac{8}{11}$

D) not defined

18) $\cos\left[\cos^{-1}\left(-\frac{10}{13}\right)\right]$

A) $\frac{3}{13}$

B) $-\frac{10}{13}$

C) $\frac{10}{13}$

D) not defined

Find the exact value of the expression. Do not use a calculator.

19) $\sin^{-1}\left(\sin\frac{5\pi}{7}\right)$

A) $\frac{7}{5\pi}$

B) $\frac{5\pi}{7}$

C) $\frac{2\pi}{7}$

D) $\frac{7}{2\pi}$

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

A) $\frac{7}{\pi}$

B) $\frac{6\pi}{7}$

C) $\frac{7}{6\pi}$

D) $\frac{\pi}{7}$

21) $\tan^{-1}\left(\tan\frac{4\pi}{5}\right)$

A) $-\frac{\pi}{5}$

B) $\frac{4\pi}{5}$

C) $\frac{\pi}{5}$

D) $-\frac{4\pi}{5}$

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

A) $\frac{\pi}{3}$

B) $\frac{7\pi}{6}$

C) $\frac{\pi}{6}$

D) $\frac{2\pi}{3}$

$$23) \tan^{-1}\left(\tan \frac{10\pi}{11}\right)$$

$$A) \frac{10\pi}{11}$$

$$B) -\frac{12\pi}{11}$$

$$C) -\frac{\pi}{11}$$

$$D) \frac{12\pi}{11}$$

$$24) \sin^{-1}\left(\sin \frac{5\pi}{4}\right)$$

$$A) -\frac{\pi}{4}$$

$$B) \frac{\pi}{4}$$

$$C) \frac{3\pi}{4}$$

$$D) \frac{5\pi}{4}$$

$$25) \cos^{-1}\left[\cos\left(-\frac{7\pi}{6}\right)\right]$$

$$A) \frac{7\pi}{6}$$

$$B) -\frac{\pi}{6}$$

$$C) \frac{5\pi}{6}$$

$$D) \frac{\pi}{6}$$

Find the exact solution of the equation.

$$26) \sin^{-1} x = \frac{\pi}{6}$$

$$A) x = 0$$

$$B) x = -\frac{1}{2}$$

$$C) x = \frac{1}{2}$$

$$D) x = 1$$

$$27) 3 \sin^{-1} x = \pi$$

$$A) x = \frac{\pi}{3}$$

$$B) x = \frac{\sqrt{2}}{2}$$

$$C) x = \frac{1}{2}$$

$$D) x = \frac{\sqrt{3}}{2}$$

$$28) 6 \cos^{-1} x = \pi$$

$$A) x = \frac{\sqrt{3}}{2}$$

$$B) x = \frac{1}{2}$$

$$C) x = \frac{\sqrt{2}}{2}$$

$$D) x = \frac{\pi}{6}$$

Find the exact value of the expression.

$$29) \sec\left[\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)\right]$$

$$A) 1$$

$$B) 0$$

$$C) 2$$

$$D) \frac{\sqrt{2}}{2}$$

$$30) \cos\left[\sin^{-1}\left(\frac{1}{2}\right)\right]$$

$$A) 0$$

$$B) \frac{\sqrt{2}}{2}$$

$$C) 1$$

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

$$31) \tan\left[\cos^{-1}\left(-\frac{1}{2}\right)\right]$$

$$A) -1$$

$$B) \sqrt{3}$$

$$C) -\frac{\sqrt{3}}{3}$$

$$D) -\sqrt{3}$$

$$32) \sin\left[\cos^{-1}\left(-\frac{\sqrt{2}}{2}\right)\right]$$

$$A) \frac{\sqrt{2}}{2}$$

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

$$C) -\frac{\sqrt{2}}{2}$$

$$D) -\frac{1}{2}$$

$$33) \csc\left[\cos^{-1}\frac{\sqrt{3}}{2}\right]$$

$$A) 2$$

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

$$C) \frac{\sqrt{2}}{2}$$

$$D) \frac{1}{2}$$

$$34) \cot[\sin^{-1}(-1)]$$

$$A) -\frac{\sqrt{2}}{2}$$

$$B) -1$$

$$C) -\frac{\sqrt{3}}{2}$$

$$D) 0$$

$$35) \tan(\cos^{-1} 1)$$

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

$$B) -1$$

$$C) 0$$

$$D) \frac{\sqrt{2}}{2}$$

$$36) \sin(\tan^{-1} 2)$$

$$A) \frac{5\sqrt{2}}{2}$$

$$B) \frac{2\sqrt{5}}{5}$$

$$C) 5\sqrt{2}$$

$$D) 2\sqrt{5}$$

$$37) \cos\left(\sin^{-1}\frac{1}{4}\right)$$

$$A) \frac{\sqrt{15}}{2}$$

$$B) \frac{4\sqrt{15}}{15}$$

$$C) \frac{\sqrt{15}}{4}$$

$$D) \frac{2\sqrt{15}}{15}$$

$$38) \cos\left(\sin^{-1}\frac{4}{5}\right)$$

$$A) -\frac{4}{5}$$

$$B) \frac{1}{5}$$

$$C) \frac{3}{5}$$

$$D) -\frac{3}{5}$$

$$39) \cos^{-1}\left(\cos\frac{7\pi}{6}\right)$$

$$A) \frac{\pi}{3}$$

$$B) \frac{4\pi}{5}$$

$$C) \frac{5\pi}{6}$$

$$D) \frac{\pi}{6}$$

$$40) \cos^{-1}\left(\sin\frac{7\pi}{6}\right)$$

$$A) \frac{2\pi}{3}$$

$$B) \frac{\pi}{6}$$

$$C) \frac{\pi}{3}$$

$$D) \frac{4\pi}{5}$$

41) $\tan\left(\cos^{-1}\frac{1}{3}\right)$

A) $2\sqrt{2}$

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

C) $-2\sqrt{3}$

D) $2\sqrt{3}$

42) $\cos\left(\tan^{-1}\frac{\sqrt{3}}{3}\right)$

A) $\frac{\pi}{3}$

B) $\frac{1}{2}$

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

D) $\frac{\sqrt{3}}{3}$

43) $\sec[\tan^{-1}(-\sqrt{3})]$

A) $\frac{1}{2}$

B) 2

C) $-\frac{2\sqrt{3}}{3}$

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

Use a calculator to find the value of the expression in radian measure rounded to 2 decimal places.

44) $\csc^{-1}\left(\frac{7}{2}\right)$

A) 0.29

B) 1.28

C) 16.60

D) 73.40

45) $\sec^{-1}\left(-\frac{8}{5}\right)$

A) -38.68

B) 128.68

C) -0.68

D) 2.25

46) $\cot^{-1}\left(-\frac{2}{3}\right)$

A) -0.59

B) -0.98

C) -56.31

D) -33.69

Using a calculator, approximate the value of the expression. Round answer to three decimal places.

47) $\sec^{-1}\left(-\frac{7}{3}\right)$

A) -2.014

B) 1.128

C) 2.014

D) 0.497

Find the inverse function f^{-1} of the function f .

48) $f(x) = 5 \sin x - 7$

A) $f^{-1}(x) = \sin^{-1}\left(\frac{x+7}{5}\right)$

B) $f^{-1}(x) = 5 \sin^{-1} x - 7$

C) $f^{-1}(x) = \sin^{-1}\left(\frac{x+5}{7}\right)$

D) $f^{-1}(x) = \cos\left(\frac{x+7}{5}\right)$

49) $f(x) = 7 \cos x + 3$

A) $f^{-1}(x) = \sin\left(\frac{x-3}{7}\right)$

B) $f^{-1}(x) = 7 \cos^{-1} x + 3$

C) $f^{-1}(x) = \cos^{-1}\left(\frac{x-3}{7}\right)$

D) $f^{-1}(x) = \cos^{-1}\left(\frac{x+3}{7}\right)$

50) $f(x) = 6 \tan(8x)$

A) $f^{-1}(x) = \frac{1}{6 \tan(8x)}$

C) $f^{-1}(x) = 6 \tan^{-1}(8x)$

B) $f^{-1}(x) = \frac{1}{6} \tan^{-1}\left(\frac{x}{8}\right)$

D) $f^{-1}(x) = \frac{1}{8} \tan^{-1}\left(\frac{x}{6}\right)$