

### Inverse Trig Functions

Evaluate.

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

0

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

$\frac{\pi}{2}$

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

$\frac{\pi}{3}$

4.  $\csc^{-1}(-2)$

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

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

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

18.  $\sin^{-1}\left(\cos\frac{5\pi}{6}\right)$

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

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

$\frac{\pi}{4}$

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

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

21.  $\cot\left(\tan^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{5}{1}$

22.  $\cos\left(\sin^{-1}\left(-\frac{2}{5}\right)\right)$

$\frac{\sqrt{21}}{5}$

23.  $\sin\left(\cos^{-1}\left(-\frac{8}{9}\right)\right)$

$\frac{\sqrt{5}}{9}$

24.  $\sin(\tan^{-1}(-6))$

$-\frac{6\sqrt{31}}{31}$

25.  $\cos\left(\tan^{-1}\left(\frac{x}{3}\right)\right)$

$\frac{\sqrt{x^2+9}}{x}$

26.  $\sin(\cot^{-1}(-x))$

$\frac{\sqrt{x^2+1}}{x}$

27.  $\cos(2\sin^{-1}\left(\frac{1}{5}\right))$

$\frac{23}{25}$

28.  $\sin(2\cos^{-1}\left(\frac{4}{5}\right))$

$\frac{24}{25}\sqrt{13}$

29.  $\sin\left(\tan^{-1}\left(\frac{2}{3}\right) - \sin^{-1}\left(\frac{5}{13}\right)\right)$

$\frac{9}{13}\sqrt{13}$

30.  $\cos\left(\sec^{-1}\left(-\frac{5}{3}\right) + \tan^{-1}\left(\frac{10}{3}\right)\right)$

$-\frac{65}{6}$

31.  $\cos\left(\cos^{-1}\left(\frac{1}{4}\right)\right)$

$\frac{1}{4}$

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

$-\frac{1}{2}$

33.  $\cos(\cos^{-1}\left(\frac{\sqrt{2}}{2}\right))$

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

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

$-\frac{1}{2}$

35.  $\cos^{-1}\left(\cos\left(\frac{11\pi}{6}\right)\right)$

$\frac{1}{2}$

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

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

37.  $\cos^{-1}\left(\frac{\sqrt{2}}{2}\right)$

$\frac{\pi}{4}$

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

$\frac{1}{2}$

39.  $\cos\left(\cos^{-1}\left(\frac{1}{2}\right)\right)$

$\frac{1}{2}$

40.  $\sin\left(\tan^{-1}\left(\frac{2}{3}\right) - \sin^{-1}\left(\frac{5}{13}\right)\right)$

$(\frac{2}{3})(\frac{12}{13}) - (\frac{5}{13})(\frac{12}{13})$

41.  $\cos\left(\sec^{-1}\left(\frac{13\sqrt{3}}{13}\right)\right)$

$\frac{13}{13}\sqrt{3}$

42.  $\sin\left(\sin^{-1}\left(\frac{15}{13}\right)\right)$

$-\frac{8}{13}$

43.  $\cos\left(\cos^{-1}\left(\frac{24}{25}\right)\right)$

$\frac{24}{25}$

44.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

45.  $\cos\left(\cos^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

46.  $\sin\left(\sin^{-1}\left(\frac{2}{5}\right)\right)$

$\frac{2}{5}$

47.  $\cos\left(\cos^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

48.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

49.  $\cos\left(\cos^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

50.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

51.  $\cos\left(\cos^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

52.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

58.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

61.  $\cos\left(\cos^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

62.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

65.  $\cos\left(\cos^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

66.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

67.  $\cos\left(\cos^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

68.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

69.  $\cos\left(\cos^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

70.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

78.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

79.  $\cos\left(\cos^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

80.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

81.  $\cos\left(\cos^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

82.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

83.  $\cos\left(\cos^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

84.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

93.  $\cos\left(\cos^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

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$\frac{1}{5}$

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$\frac{1}{5}$

96.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

97.  $\cos\left(\cos^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

98.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

99.  $\cos\left(\cos^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$

100.  $\sin\left(\sin^{-1}\left(\frac{1}{5}\right)\right)$

$\frac{1}{5}$