

## Inverse of Special Angles with Identities

Find the exact values for the inverse functions

1.  $\arcsin \frac{1}{2}$

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

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

4.  $\arccos 1$

5.  $\arctan 1$

6.  $\tan^{-1} \sqrt{3}$

7.  $\cot^{-1} \sqrt{3}$

8.  $\operatorname{arccot} 1$

9.  $\operatorname{arcsec} 2$

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

11.  $\csc^{-1} \sqrt{2}$

12.  $\operatorname{arccsc} 2$

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

14.  $\arcsin \left( -\frac{1}{2} \right)$

15.  $\arccos (-1)$

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

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

18.  $\arctan (-\sqrt{3})$

19.  $\operatorname{arccot} (-1)$

20.  $\cot^{-1} (-\sqrt{3})$

21.  $\sec^{-1} (-\sqrt{2})$

22.  $\operatorname{arcsec} (-1)$

23.  $\operatorname{arccsc} (-\sqrt{2})$

24.  $\csc^{-1} (-1)$

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

26.  $\cos \left( \arctan \frac{4}{3} \right)$

27.  $\sin \left( \tan^{-1} \frac{5}{12} \right)$

28.  $\sec \left( \arcsin \frac{15}{17} \right)$

29.  $\cos \left( \arcsin \left( -\frac{8}{17} \right) \right)$

30.  $\cot \left( \csc^{-1} \left( -\frac{13}{12} \right) \right)$

31.  $\sec \left( \arccos \frac{2}{3} \right)$

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

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

34.  $\tan (\operatorname{arcsec} (-\sqrt{2}))$

35.  $\csc (\operatorname{arccot} 3)$

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

37.  $\csc (\operatorname{arccsc} 5)$

38.  $\sin \left( \arcsin \frac{2}{3} \right)$

39.  $\cos (\arcsin 2)$

40.  $\tan (\operatorname{arcsec} 0)$

41.  $\arctan \left( \tan \frac{\pi}{6} \right)$

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

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

44.  $\operatorname{arcsec} \left( \sec \left( -\frac{\pi}{3} \right) \right)$

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

46.  $\operatorname{arccsc} \left( \csc \frac{2\pi}{3} \right)$

47.  $\operatorname{arccot} \left( \tan \frac{\pi}{3} \right)$

48.  $\arcsin \left( \cos \frac{\pi}{6} \right)$

49.  $\cos \left( 2 \arctan \frac{4}{3} \right)$

50.  $\cos \left( 2 \arcsin \frac{1}{3} \right)$

51.  $\sin \left( 2 \operatorname{arcsec} \left( -\frac{25}{7} \right) \right)$

52.  $\tan \left( 2 \arcsin \left( -\frac{8}{17} \right) \right)$

53.  $\sin \left( \arctan \frac{1}{2} + \arctan \frac{1}{3} \right)$

54.  $\tan \left( \arctan \frac{1}{4} + \arctan \frac{3}{5} \right)$

55.  $\cos \left( \arcsin \frac{2}{3} + \arcsin \frac{1}{5} \right)$

56.  $\cos \left( \operatorname{arcsec} \frac{3}{2} - \operatorname{arccos} \frac{1}{5} \right)$

57.  $\sin \left( \frac{\pi}{2} + \operatorname{arccos} \frac{11}{13} \right)$

58.  $\csc \left( \frac{\pi}{2} - \operatorname{arcsec} 19 \right)$

59.  $\tan \left( \frac{\pi}{2} - \operatorname{arccot} 2 \right)$

60.  $\cos \left( \frac{\pi}{2} - \arcsin 0.7 \right)$

Answers:

1.  $\frac{\pi}{6}$
2.  $\frac{\pi}{3}$
3.  $\frac{\pi}{2}$
4. 0
5.  $\frac{\pi}{4}$
6.  $\frac{\pi}{3}$
7.  $\frac{\pi}{6}$
8.  $\frac{\pi}{4}$
9.  $\frac{\pi}{3}$
10.  $\frac{\pi}{6}$
11.  $\frac{\pi}{4}$
12.  $\frac{\pi}{6}$
13.  $-\frac{\pi}{3}$
14.  $-\frac{\pi}{6}$
15.  $\pi$
16.  $\frac{3\pi}{4}$
17.  $-\frac{\pi}{4}$
18.  $-\frac{\pi}{3}$
19.  $-\frac{\pi}{4}$
20.  $-\frac{\pi}{6}$
21.  $\frac{3\pi}{4}$
22.  $\pi$
23.  $-\frac{\pi}{4}$
24.  $-\frac{\pi}{2}$
25.  $\frac{3}{4}$
26.  $\frac{3}{5}$
27.  $\frac{5}{13}$
28.  $\frac{17}{8}$
29.  $\frac{15}{17}$
30.  $-\frac{5}{12}$
31.  $\frac{3}{2}$
32.  $\frac{\sqrt{17}}{17}$
33. -1
34. -1
35.  $\sqrt{10}$
36.  $\sqrt{5}$
37. 5
38.  $\frac{2}{3}$
39. No value
40. No value
41.  $\frac{\pi}{6}$
42.  $\frac{\pi}{4}$
43.  $-\frac{\pi}{4}$
44.  $\frac{\pi}{3}$
45.  $\frac{5\pi}{6}$
46.  $\frac{\pi}{3}$
47.  $\frac{\pi}{6}$
48.  $\frac{\pi}{3}$
49.  $-\frac{7}{25}$
50.  $\frac{7}{9}$
51.  $-\frac{336}{625}$
52.  $-\frac{240}{161}$
53.  $\frac{\sqrt{2}}{2}$
54. 1
55.  $\frac{2\sqrt{30}-2}{15}$
56.  $\frac{2+2\sqrt{30}}{15}$
57.  $\frac{11}{13}$
58. 19
59. 2
60.  $\frac{7}{10}$