Evaluate the given expression without the aid of a calculator.

1. \( \sin^{-1}\left(\frac{1}{2}\right) = \theta \)
   \( \theta \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] \)

2. \( \cos^{-1}\left(\frac{1}{2}\right) = \theta \)
   \( \theta \in [0, \pi] \)

3. \( \tan^{-1}\left(\frac{\sqrt{3}}{3}\right) = \theta \)
   \( \theta \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right) \)

4. \( \arccos\left(\frac{\sqrt{3}}{2}\right) = \theta \)
   \( \theta \in [0, \pi] \)

5. \( \arcsin\left(\frac{\sqrt{2}}{2}\right) = \theta \)
   \( \theta \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] \)

6. \( \arctan(1) = \theta \)
   \( \theta \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right) \)

7. \( \arcsin^{-1}\left(-\frac{1}{2}\right) = \theta \)
   \( \theta \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] \)

8. \( \arccos\left(-\frac{1}{2}\right) = \theta \)
   \( \theta \in [0, \pi] \)

9. \( \arctan\left(-\frac{\sqrt{3}}{3}\right) = \theta \)
   \( \theta \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right) \)

10. \( \cos^{-1}\left(-\frac{\sqrt{3}}{2}\right) = \theta \)
    \( \theta \in [0, \pi] \)

11. \( \sin^{-1}\left(-\frac{\sqrt{2}}{2}\right) = \theta \)
    \( \theta \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] \)

12. \( \tan^{-1}(-1) = \theta \)
    \( \theta \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right) \)

13. \( \sin^{-1}0 = \theta \)
    \( \theta \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] \)

14. \( \cos^{-1}0 = \theta \)
    \( \theta \in [0, \pi] \)

15. \( \tan^{-1}\left(-\sqrt{3}\right) = \theta \)
    \( \theta \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right) \)

16. \( \arcsin(1) = \theta \)
    \( \theta \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] \)

17. \( \arccos(1) = \theta \)
    \( \theta \in [0, \pi] \)

18. \( \tan^{-1}0 = \theta \)
    \( \theta \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right) \)

19. \( \arcsin(-1) = \theta \)
    \( \theta \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] \)

20. \( \arccos(-1) = \theta \)
    \( \theta \in [0, \pi] \)

21. \( \tan^{-1}0 = \theta \)
    \( \theta \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right) \)
Find the exact value without a calculator.

21. \( \cos\left(\sin^{-1}\left(\frac{1}{2}\right)\right) = \theta \)
22. \( \sin\left(\cos^{-1}\left(\frac{\sqrt{2}}{2}\right)\right) = \theta \)
23. \( \sin^{-1}\left(\cos\left(\frac{\pi}{3}\right)\right) \)
24. \( \cos^{-1}\left(\sin\left(\frac{\pi}{6}\right)\right) \)
25. \( \sin^{-1}\left(\sin\left(\frac{7\pi}{4}\right)\right) \)
26. \( \arccos\left(\sin\left(\frac{\pi}{3}\right)\right) \)

Find an algebraic expression equivalent to the given expression.

27. \( \sin\left(\tan^{-1}\left(\sqrt{3}\right)\right) = \theta \)
28. \( \cos\left(\tan^{-1}\left(-1\right)\right) = \theta \)

Evaluate using your calculator to find the approximate value. Express your answer in degrees.

30. \( \tan\left(\arccos\left(\frac{x}{3}\right)\right) = \theta \)
31. \( \sin\left(\arccos(x)\right) \)
32. \( \sin\left(\arctan\left(\frac{x}{2}\right)\right) = \theta \)

33. \( \sin^{-1}(.8621) \)
34. \( \tan^{-1}(.5893) \)
35. \( \cos^{-1}(-.3218) \)
36. \( \arcsin(-.6821) \)
37. \( \arctan(-1.6283) \)
38. \( \arccos(.2814) \)
39. \( \arcsin(.2618) \)
40. \( \cos^{-1}(-.8090) \)
41. \( \tan^{-1}(-1.7321) \)