Pre-calculus 6.1 Homework

Name_____ Date_____ Per_____

Find the exact values, in radians, without using a calculator.

1. $\operatorname{arccsc}\left(-\frac{2\sqrt{3}}{3}\right)$
2. $\cos^{-1}(-1)$
3. $\tan^{-1}(-1)$
4. $\operatorname{arccot}\left(-\sqrt{3}\right)$
5. $\arccos\left(-\frac{\sqrt{2}}{2}\right)$
6. $\arctan\left(\frac{\sqrt{3}}{3}\right)$
7. $\arcsin(-1)$
8. $\sec^{-1}(1)$
9. $\operatorname{arcsec}(-2)$
10. $\sin^{-1}\left(-\frac{1}{2}\right)$
11. $\csc^{-1}\left(\sqrt{2}\right)$
12. $\cot^{-1}(0)$
13. $\arcsin\left(\frac{\sqrt{3}}{2}\right)$

Find the exact values, in degrees, without using a calculator.

14. $\arccos\left(\frac{\sqrt{3}}{2}\right)$
15. $\arcsin(0)$
16. $\operatorname{arccot}(-1)$
17. $\sec^{-1}\left(\frac{2}{\sqrt{3}}\right)$
18. $\tan^{-1}\left(-\sqrt{3}\right)$
19. $\operatorname{arccsc}\left(-\sqrt{2}\right)$
20. $\cos^{-1}\left(-\frac{1}{2}\right)$
21. $\operatorname{arcsec}(-1)$
22. $\arctan(1)$
23. $\csc^{-1}(1)$
24. $\cot^{-1}\left(\frac{1}{\sqrt{3}}\right)$
25. $\sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)$
26. $\cos^{-1}(0)$

Find the approximate value of each expression with a calculator, in radians. Round answers to two decimal places.

27. $\sec^{-1}(-3.44)$

28. $\operatorname{arccsc}(\sqrt{6})$

29. $\operatorname{arccot}(15.6)$

30. $\cot^{-1}(-12)$

Find the exact value of each composition, without using a calculator.

31. $\tan(\arccos(1/2))$

32. $\sin^{-1}(\cos(2\pi/3))$

33. $\arcsin(\sin(3\pi/4))$

34. $\cos^{-1}(\cos(5\pi/3))$

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

36. $\tan(\cot^{-1}(0))$

37. $\sec(\cos^{-1}(3/8))$

38. $\cot(\sin^{-1}(-7/25))$

39. $\sin(\sec^{-1}(5/3))$

Find an equivalent algebraic expression for each composition.

40. $\sin(\arccos(x))$

41. $\cos(\arctan(x))$

42. $\tan(\arcsin(x/4))$

43. $\sec(\arctan(3x))$