8.3A

Precalculus Worksheet **Name** _____
– Inverse Trig Functions

Evaluate the given expression without the aid of a calculator.

1. $\sin^{-1}\left(\frac{1}{2}\right)$
2. $\cos^{-1}\left(\frac{1}{2}\right)$
3. $\tan^{-1}\left(\frac{\sqrt{3}}{3}\right)$
4. $\arccos\left(\frac{\sqrt{3}}{2}\right)$
5. $\arcsin\left(\frac{\sqrt{2}}{2}\right)$
6. $\arctan(1)$
7. $\arcsin^{-1}\left(-\frac{1}{2}\right)$
8. $\arccos\left(-\frac{1}{2}\right)$
9. $\arctan\left(-\frac{\sqrt{3}}{3}\right)$
10. $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$
11. $\sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)$
12. $\tan^{-1}(-1)$
13. $\sin^{-1}0$
14. $\cos^{-1}0$
15. $\tan^{-1}\left(-\sqrt{3}\right)$
16. $\arcsin(1)$
17. $\arccos(1)$
18. $\tan^{-1}0$
19. $\arcsin(-1)$
20. $\arccos(-1)$

Find the exact value without a calculator.

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

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

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. $\arccos\left(\sin\left(\frac{\pi}{3}\right)\right)$

27. $\sin\left(\tan^{-1}\left(\sqrt{3}\right)\right)$

28. $\cos\left(\tan^{-1}(-1)\right)$

29. $\tan^{-1}(\cos(\pi))$

Find an algebraic expression equivalent to the given expression.

30. $\tan\left(\arccos\left(\frac{x}{3}\right)\right)$

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

32. $\sin\left(\arctan\left(\frac{x}{2}\right)\right)$

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

33. $\sin^{-1}(.8621)$

34. $\tan^{-1}(.5893)$

35. $\cos^{-1}(-.3218)$

36. arcsin (-.6821)

37. arctan (-1.6283)

38. arcos(.2814)

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

39. arcsin (.2618)

40. $\cos^{-1}(-.8090)$

41. $\tan^{-1}(-1.7321)$