

Precalculus Worksheet
Section 4.7 – Inverse Trig Functions

Name _____
Period _____

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

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. $\sin\left(\tan^{-1}(\sqrt{3})\right)$ 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. $\arccos(.2814)$

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

39. $\arcsin(.2618)$ 40. $\cos^{-1}(-.8090)$ 41. $\tan^{-1}(-1.7321)$

Section 4.7 WS Answers

1. 30

2. 60

3. 30

4. 30

5. 45

6. 45

7. -30 or 330

8. 120

9. -30 or 330

10. 150

11. -45 or 315

12. -45 or 315

13. 0

14. 90

15. -60 or 300

16. 90

17. 0

18. 0

19. -90 or 270

20. 180

21. $\frac{\sqrt{3}}{2}$

22. $\frac{\sqrt{2}}{2}$

23. 30

24. 60

25. 315 or -45

26. 30

27. $\frac{\sqrt{3}}{2}$

28. $\frac{\sqrt{2}}{2}$

29. 315 or -45

30. $\frac{\sqrt{9-x^2}}{x}$

31. $\sqrt{1-x^2}$

32. $\frac{x}{\sqrt{x^2+4}}$

33. 59.55

34. 30.51

35. 108.77

36. -43.01

37. -58.44

38. 73.66

39. 0.2649

40. 2.5132

41. -1.0472