

Inverse Trigonometric Functions Homework  
Module 3, Unit 7, Lesson 6

Find the exact value of each expression. Show all necessary work.

1.  $\sin^{-1}\frac{1}{2} =$

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

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

4.  $\tan^{-1}0 =$

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

6.  $\tan^{-1}(-1) =$

7.  $\cos^{-1}\frac{1}{2} =$

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

$$9. \cos^{-1}\left(-\frac{1}{2}\right) =$$

$$10. \tan^{-1}\left(-\frac{\sqrt{3}}{3}\right) =$$

Find the exact value of the expression. Show all necessary work.

$$11. \sin(\sin^{-1} 0.9) =$$

$$12. \cos^{-1}\left(\cos \frac{2\pi}{3}\right) =$$

$$13. \tan(\tan^{-1} 8) =$$

$$14. \sin^{-1}\left(\sin \frac{5\pi}{6}\right) =$$

$$15. \tan^{-1}\left[\tan\left(-\frac{\pi}{6}\right)\right] =$$

$$16. \cos^{-1}\left(\cos \frac{7\pi}{4}\right) =$$

$$17. \cos(\cos^{-1} \pi) =$$

$$18. \sin^{-1}\left[\sin\left(-\frac{\pi}{4}\right)\right] =$$

Use a sketch to find the exact value of each expression. Show all necessary work.

$$19. \sin\left[\cos^{-1}\left(-\frac{12}{13}\right)\right] =$$

$$20. \cot\left(\sin^{-1}\frac{4}{5}\right) =$$

$$21. \tan\left[\cos^{-1}\left(-\frac{1}{4}\right)\right] =$$

$$22. \csc\left(\sin^{-1}\frac{1}{3}\right) =$$

$$23. \tan\left[\sin^{-1}\left(-\frac{3}{5}\right)\right] =$$

$$24. \sec\left[\tan^{-1}\left(-\frac{7}{24}\right)\right] =$$

### Answers

$$1. \frac{\pi}{6}$$

$$6. -\frac{\pi}{4}$$

$$11. 0.9$$

17. not possible,  
not in domain

$$21. \frac{\sqrt{15}}{4}$$

$$2. \frac{5\pi}{6}$$

$$7. \frac{\pi}{3}$$

$$12. \frac{2\pi}{3}$$

$$13. 8$$

$$22. \frac{3\sqrt{2}}{4}$$

$$3. -\frac{\pi}{6}$$

$$8. -\frac{\pi}{3}$$

$$14. \frac{\pi}{6}$$

$$18. -\frac{\pi}{4}$$

$$23. -\frac{3}{4}$$

$$4. 0$$

$$9. \frac{2\pi}{3}$$

$$15. -\frac{\pi}{6}$$

$$19. \frac{5}{13}$$

$$24. \frac{25}{7}$$

$$5. -\frac{\pi}{3}$$

$$10. -\frac{\pi}{6}$$

$$16. \frac{\pi}{4}$$

$$20. \frac{3}{4}$$