

Unit 3 Test ReviewFind the value of θ where $0 \leq \theta < 2\pi$

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

2. $\cos^{-1}(-1) = \theta$

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

4. $\csc^{-1}(2) = \theta$

5. $\arccos\left(\frac{\sqrt{2}}{2}\right) = \theta$

Find the general solutions to the equation

6. $\tan x = -\sqrt{3}$

7. $\sin x = \frac{\sqrt{2}}{2}$

8. $\cos x = \frac{-\sqrt{3}}{2}$

9. $\csc x = 1$

Find the exact principal value

10. $\cos x = \frac{-1}{\sqrt{2}}$

11. $\sin x = -1$

12. $\tan x = \frac{-\sqrt{3}}{3}$

List the restricted ranges of each

13. $y = \sin^{-1} x$

14. $y = \cos^{-1} x$

15. $y = \tan^{-1} x$

Find the exact value using radicals or radians when necessary

$$14. \sin\left(\cos^{-1}\left(\frac{2}{3}\right)\right)$$

$$15. \sin\left(\tan^{-1}(-5)\right)$$

$$16. \sin^{-1}(\cos(0))$$

$$17. \cos\left(\arcsin\left(-\frac{10}{7}\right)\right)$$

$$18. \sin^{-1}\left(\cos\left(\frac{5\pi}{6}\right)\right)$$

$$19. \cos^{-1}\left(\cos\left(-\frac{3\pi}{4}\right)\right)$$

$$20. \tan^{-1}(\cos(\pi))$$

$$21. \tan(\cos^{-1}(0))$$

$$22. \tan\left(\arccsc\left(-\frac{10}{3}\right)\right)$$

Write as an algebraic expression

$$23. \tan(\arcsin(2x))$$

$$24. \cos(\csc^{-1} x)$$

$$25. \sin\left(\tan^{-1}\frac{x}{4}\right)$$

For each of the following functions use **algebraic** methods to find the general solutions for the given value of $f(x)$. Round to three decimal places.

$$26. y = 5 + 4\sin\frac{\pi}{12}(x+10)$$

$$27. y = 1 + 3\cos\frac{\pi}{8}(x+7)$$

$$f(x) = 7$$

$$f(x) = 2$$