Pre-Calculus
Inverse Functions

Name _____

Date _____ Per _____

Find the exact value of each expression

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

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

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

4. $\tan\left(\sin^{-1}\left(-\frac{1}{2}\right)\right)$

5. $\sec\left(\cos^{-1}\frac{1}{2}\right)$

6. $\cot\left[\sin^{-1}\left(-\frac{1}{2}\right)\right]$

7. $\csc(\tan^{-1}1)$

8. $\sec\left(\tan^{-1}\sqrt{3}\right)$

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

10. $\sin^{-1}\left(\tan\frac{7\pi}{4}\right)$

11. $\cos^{-1}\left(\cos\frac{5\pi}{4}\right)$

12. $\tan^{-1}\left(\sin\frac{7\pi}{6}\right)$

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

14. $\tan^{-1}(\cos 5\pi)$

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

Find the exact value by drawing a picture and using the Pythagorean Theorem.

16. $\tan\left(\sin^{-1}\frac{1}{3}\right)$

17. $\sec\left(\tan^{-1}\frac{1}{2}\right)$

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

19. $\sin[\tan^{-1}(-3)]$

20. $\csc\left[\tan^{-1}\left(-\frac{1}{2}\right)\right]$

21. $\cot\left[\cos^{-1}\left(-\frac{\sqrt{3}}{7}\right)\right]$

Solve each equation on the interval of [0, 2π) or [0, 360).

1. $\sin\theta = \frac{1}{2}$

2. $\tan\theta = 1$

3. $\tan\theta = -\frac{\sqrt{3}}{3}$

4. $\cos\theta = 0$

5. $\cos\theta = -\frac{\sqrt{3}}{2}$

6. $\sec\theta = -2$

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

8. $\tan 3\theta = -1$

9. $\cot\frac{2\theta}{3} = -\sqrt{3}$

10. $\cos\left(2\theta - \frac{\pi}{2}\right) = -1$

11. $\sin\left(3\theta + \frac{\pi}{18}\right) = 1$

12. $\cos\left(\frac{\theta}{3} - \frac{\pi}{4}\right) = \frac{1}{2}$

Use a calculator to solve each equation on the interval of [0, 2π). Round your answer to two decimal places.

13. $\cos\theta = 0.6$

14. $\tan\theta = 5$

15. $\sin\theta = -0.2$

16. $\sec\theta = -4$

17. $\csc\theta = \frac{5}{3}$

18. $\cot\theta = -2$