Solving Trig Equations Practice Worksheet Name _____ Desk _____
Precalculus Date _____

Solve for the unknown variable on the interval $0 \leq x < 2\pi$.

1. $4\cos^2 x - 3 = 0$

2. $\sqrt{2}\sin 2x = 1$

3. $3\tan^2 x - 1 = 0$

4. $\cos^3 x = \cos x$

5. $\sin x - 2\sin x \cos x = 0$

6. $2\sin^2 x - \sin x - 3 = 0$

7. $\csc^2 x - \csc x - 2 = 0$

8. $\cos^2 x = 1 - \sin x$

Solve for the unknown variable on the given interval.

9. $\sqrt{3} + \tan 2x = 0$ on $0 \leq x < 2\pi$

10. $\cos(\pi x) = 0.5$ on $[0,2)$

11. $\sin\left(\frac{x}{2}\right) - 1 = 0$ on $[0,8\pi)$

Solve for the unknown variable. Give **all** the exact general solutions. (For the even problems, leave your answer in radians. For the odd problems, leave your answer in degrees.)

12. $\sin\theta = \frac{\sqrt{2}}{2}$

13. $\cos\theta = \sin\theta$

14. $\tan\theta = 1$

15. $1 + \sin\theta = 2\cos^2\theta$

16. $2\cos^2\theta + \cos\theta = 0$

17. $\sin 3\theta = -1$

18. $\sin^2\theta - 1 = 0$

19. $\cos 2\theta = \frac{1}{2}$

20. $2\sin^2\theta - \sin\theta - 1 = 0$

21. $\tan 4\theta = 1$

22. $\tan^2 3\theta = 3$

23. $\cos\frac{x}{2} = \frac{\sqrt{2}}{2}$