

PreCalculus

WS: 5.3 Extra Practice

Name _____

Date _____ Block _____

Find the general solutions to each equation and then list all solutions on the interval $[0, 2\pi)$. When necessary, round decimals to the nearest thousandth.

I. Basic Equations

1. $\sqrt{3} \tan x + 1 = 0$

2. $\frac{1}{2} \sec x - 1 = 0$

3. $\cot x - \sqrt{3} = 0$

4. $18 \cos x - 9\sqrt{3} = 0$

5. $8 \cos x - 4\sqrt{2} = 0$

6. $4 \cos x + 1 = 2 \cos x$

7. $\cos x + \sin x \tan x = 2$

8. $\frac{1 + \sin x}{\cos x} + \frac{\cos x}{1 + \sin x} = 4$

II. Solve using the square root method.

9. $\sec^2 x - 1 = 0$

10. $4 \cos^2 x - 1 = 0$

11. $2 \cos^2 x = 1$

12. $3 \tan^2 x - 9 = 0$

13. $3 \sec^2 x - 4 = 0$

III. Solve by factoring.

14. $\sin^2 x - 3 \sin x + 2 = 0$

15. $\cot^2 x = -2 \cot x - 1$

16. $\sin^2 x \cos x = \cos x$

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

18. $2 \cos^2 x - \sqrt{3} \cos x = 0$

19. $\sec x \csc x = 2 \csc x$

20. $\sec^4 x - 3 \sec^2 x - 4 = 0$

IV. Multiple Angle Equations

21. $\sin \frac{x}{2} - 1 = 0$

22. $3 \tan 4x + 2 = -1$

23. $\tan^2 3x = 3$

24. $4 \cos 3x = 2\sqrt{3}$

25. $2 \sin 2x - \sqrt{2} = 0$

26. $3 \tan^2 2x - 1 = 0$

27. $4 \cos^2 2x - 2 = 0$

V. Rewriting in Terms of Single Trig Function

28. $\sec^2 x - \tan x = 1$

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

30. $\cot^2 x - \csc x = 1$

31. $2 \cos^2 x - 2 \sin^2 x = 1$

VI. When the Unit Circle Won't Do.....

32. $\tan^2 x + \tan x - 12 = 0$

33. $5 \tan^2 x + 8 \tan x - 4 = 0$

34. $2 \tan^2 x + 5 \tan x = 3$

35. $9 \cos^2 x + 3 \cos x - 2 = 0$

36. $\cos^2 x - 2 \cos x - 1 = 0$

37. $4 \cos^2 x - 2 \sin x + 1 = 0$

38. $2 \sec^2 x + \tan x - 6 = 0$

39. $12 \sin^2 x - 13 \sin x + 3 = 0$

40. $1 + 2 \sin x = 2 \cos^2 x$

41. $3 \tan^2 x + 5 \tan x - 4 = 0$

42. $\cos^2 x - 2 \cos x - 1 = 0$

43. $2 \sec^2 x + \tan x - 6 = 0$