2. Get the *general* solution by finding the argument.
   a. If it is a *special* angle, write the *exact* value.
   b. If *not*, use calculator or tables.
3. Do whatever algebra you need to find the *variable* in the argument (Examples 2, 3, 4, and 6).
4. Write the solution set.
   a. Find all solutions in the domain by picking integer values of n in the general solution.
   b. Check for extraneous solutions if you have multiplied by a variable.

he following exercise will give you practice solving igonometric equations.

EXERCISE 3-9

or Problems 1 through 40, solve the equation in the ndicated domain.

1. $\tan \theta + \sqrt{3} = 0$, $\theta \in [0°, 360°)$

2. $2 \cos \theta + \sqrt{3} = 0$, $\theta \in [0°, 360°)$

3. $2 \sin(\theta + 47°) = 1$, $\theta \in [0°, 360°)$

4. $\sec(\theta + 81°) = 2$, $\theta \in [0°, 360°)$

5. $4 \cos^2 \theta = 1$, $\theta \in [-180°, 180°]$

6. $4 \sin^2 \theta = 3$, $\theta \in [-180°, 180°]$

7. $2 \sin \theta \cos \theta = \sqrt{2} \cos \theta$, $\theta \in$ {real numbers of degrees}

8. $\tan \theta \sec \theta = \tan \theta$, $\theta \in$ {real numbers of degrees}

9. $\tan x - \sqrt{3} = 2 \tan x$, $x \in$ {real numbers}

0. $\cos x + 2 = 3 \cos x$, $x \in$ {real numbers}

1. $2 \sin^2 \theta + \sin \theta = 0$, $\theta \in (-180°, 180°)$

2. $\tan^2 \theta + \tan \theta = 0$, $\theta \in [-90°, 90°)$

3. $2 \cos^2 x - 5 \cos x + 2 = 0$, $x \in [0, 2\pi)$

14. $2 \sec^2 x - 3 \sec x - 2 = 0$, $x \in [0, 2\pi)$

15. $\sin^2 \theta + 5 \sin \theta + 6 = 0$, $\theta \in [0°, 360°)$

16. $4 \csc^2 \theta + 4 \csc \theta + 1 = 0$, $\theta \in [0°, 360°)$

17. $\tan^2 x - \sec x - 1 = 0$, $x \in [-\pi, \pi)$

18. $3 - 3 \sin x - 2 \cos^2 x = 0$, $x \in [-\pi, \pi]$

19. $1 - \cos \theta = -\sin \theta$, $\theta \in [-180°, 180°)$

20. $\dfrac{1 + \cos \theta}{\sin \theta} = -1$, $\theta \in [-180°, 180°)$

21. $4 \sin x \cos x = \sqrt{3}$, $x \in [0, 2\pi)$

22. $\sin x = \sin 2x$, $x \in [0, 2\pi)$

23. $\dfrac{\sin(90° - \theta)}{\sin \theta} = -\sqrt{3}$, $\theta \in (-270°, 270°)$

24. $\tan(90° - \theta) = -1$, $\theta \in (-180°, 180°)$

25. $\sin 2\theta \cos 64° + \cos 2\theta \sin 64° = \dfrac{\sqrt{3}}{2}$, $\theta \in [0°, 360°)$

26. $\cos 3\theta \cos 12° - \sin 3\theta \sin 12° = \dfrac{1}{2}$, $\theta \in [-120°, 120°)$

27. $\cos 4\theta - \sin 2\theta = 0$, $\theta \in (-90°, 90°)$

28. $\cos 4\theta - \sin 2\theta = 1$, $\theta \in [-90°, 90°)$

29. $\cos 3\theta + \cos 5\theta = 0$, $\theta \in (-90°, 90°)$

30. $\sin 5\theta + \sin 7\theta = 0$, $\theta \in [-90°, 90°)$

31. $\cos x - \sqrt{3} \sin x = 1$, $x \in (0, 2\pi]$

32. $\sin x - \sqrt{3} \cos x = 1$, $x \in [-\pi, \pi)$

33. $\dfrac{\tan 10\theta + \tan 50°}{1 - \tan 10\theta \tan 50°} = \dfrac{\sqrt{3}}{3}$, $\theta \in (0°, 90°)$

34. $\tan \theta - \tan 10° = 1 + \tan \theta \tan 10°$, $\theta \in [-180°, 180°]$

35. $\tan \tfrac{1}{2}x + 1 = \cos x$, $x \in [0, 4\pi]$

36. $2 \cos^2 \tfrac{1}{2}x - 2 = 2 \cos x$, $x \in [-\pi, \pi)$

37. $2 \cos(\theta + 30°) \cos(\theta - 30°) = 1$, $\theta \in [-180°, 180°]$

38. $4 \sin(\theta + 75°) \cos(\theta - 75°) = 1$, $\theta \in [-180°, 180°)$