1. Solve for $\theta$, $0^\circ \leq \theta < 360^\circ$:

$$2 \cos(4\theta) - 1 = 0$$

2. Find the exact value of $\sin 345^\circ$.

3. Find the exact value of

$$\sin 325^\circ \cos 25^\circ - \cos 325^\circ \sin 25^\circ =$$
4. Solve for $x$, $0 \leq x < 2\pi$: $2 \sin x \tan x - \tan x = 0$

5. Solve for $x$, $0 \leq x < 2\pi$: $\sin(2x) - 2\sin^2 x = 0$
6. Solve for $x, \ 0 \leq x < 2\pi$: $\tan x - 2\sin x \cos x = 0$

7. Solve for $x, \ 0 \leq x < 2\pi$: $\cos^3 x - \cos x = 0$
8. Solve for $x$, $0 \leq x < 2\pi$: \[3(\sec x + 1) = \sec x + 7\]

9. Verify the following identity. Be sure to show all steps for full credit.

\[1 - \sin(2\theta) \tan \theta = \cos(2\theta)\]
10. Verify the following identity. Be sure to show all steps for full credit.

\[(\cos \theta - \sin \theta)(\cos \theta + \sin \theta) = 2 \cos^2 \theta - 1\]

11. Verify the following identity. Be sure to show all steps for full credit.

\[\sin \theta \cos^2 \theta (\cot \theta + \tan \theta) = \cos \theta\]
12. Verify the following identity. Be sure to show all steps for full credit.

\[
\frac{\sec \theta - \tan \theta}{1 - \sin \theta} = \sec \theta
\]

13. Verify the following identity. Be sure to show all steps for full credit.

\[
\sec^2 \theta + \csc^2 \theta = \sec^2 \theta \csc^2 \theta
\]
1. \( \theta = 15^\circ, 105^\circ, 195^\circ, 285^\circ; \ 75^\circ, 165^\circ, 255^\circ, 345^\circ \)

2. \( \frac{1 - \sqrt{3}}{2\sqrt{2}} \)

3. \( -\frac{\sqrt{3}}{2} \)

4. \( x = 0, \pi, \frac{\pi}{6}, \frac{5\pi}{6} \)

5. \( x = 0, \pi, \frac{\pi}{4}, \frac{5\pi}{4} \)

6. \( x = 0, \pi, \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4} \)

7. \( x = 0, \pi, \frac{\pi}{4}, \frac{3\pi}{2} \)

8. \( x = \frac{\pi}{3}, \frac{5\pi}{3} \)