1. Determine the solution of $4\cos x - 2 = 0$ for $0 \leq x < 2\pi$, then write the general solution.

2. Determine the solution of $5\csc x + 7 = 0$ for $0 \leq x < 2\pi$, then write the general solution.

3. Determine the solution of $2\,tan^2 x + 3\,tan\,x + 1 = 0$ for $0 \leq x < 2\pi$, then write the general solution.

4. Determine the solution of $2\sin x \cos x = 3\cos x$ for $0 \leq x < 2\pi$, then write the general solution.

5. Determine the solution of $\cos 2x = \frac{\sqrt{3}}{2}$ for $0 \leq x < 2\pi$, then write the general solution.

6. Determine the solution of $\cot\left(\frac{1}{3}x\right) - 5 = 0$ for $-2\pi \leq x < 2\pi$, then write the general solution.

Answer:

1. $x = \frac{\pi}{3}, \frac{5\pi}{3}$, GS: $x = \frac{\pi}{3} + 2\pi n,\ \frac{5\pi}{3} + 2\pi n \ \ n \in I$

2. $x = 3.94, 5.49$, GS: $x = 3.94 + 2\pi n,\ 5.49 + 2\pi n \ \ n \in I$

3. $x = \frac{3\pi}{4}, \frac{7\pi}{4}, 2.68,\ 5.82$, GS: $x = \frac{3\pi}{4} + \pi n,\ 2.68 + \pi n \quad n \in I$

4. $x = \frac{\pi}{2}, \frac{3\pi}{2}$, GS: $x = \frac{\pi}{2} + \pi n \ \ n \in I$

5. $x = \frac{\pi}{12}, \frac{11\pi}{12}, \frac{13\pi}{12}, \frac{23\pi}{12}$, GS: $x = \frac{\pi}{12} + \pi n,\ \frac{11\pi}{12} + \pi n \ \ n \in I$

6. $x = 0.59$, GS: $x = 0.59 + 3\pi n \ \ n \in I$