$$
\begin{aligned}
& \text { 33. } \sin x=\frac{\cos 2 x-1}{x-2 \sin ^{2} x-1} \\
& \sin x=1 \\
& 2 \sin ^{2} x+\sin x=0 \\
& \sin x(2 \sin x+1)=0 \\
& \sin x=0 \quad 2 \sin x+1=0 \\
& x=0^{\circ}, 180^{\circ} \quad \sin x=-\frac{1}{2} \\
& x=0, \pi, \frac{7 \pi}{6}, \frac{11 \pi}{6}=210^{\circ}, 330^{\circ}
\end{aligned}
$$

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

$$
\sqrt{2} \frac{\sin x}{\cos x}-2 \sin x=0
$$

$$
\sqrt{2} \frac{1}{\cos x}-2=0
$$

$$
\sin x\left(\frac{\sqrt{2}}{\cos x}-2\right)=0
$$

$$
\begin{aligned}
& \sin x\left(\frac{\cos x}{\cos }-2\right)=0 \\
& \sin x=0 \quad \frac{\sqrt{2}}{\cos x}-2=0
\end{aligned}
$$

$$
\begin{array}{ll}
x=0^{\circ}, 180^{\circ} \\
x=0, \pi, \frac{\pi}{4}, \frac{7 \pi}{4} & \begin{array}{l}
\frac{\sqrt{2}}{\cos x}
\end{array}=2 \\
\sqrt{2}=2 \cos x \\
\frac{\sqrt{3}}{2}=\cos x \\
x=45,315^{\circ}
\end{array}
$$

$$
\tan x=\frac{y}{x}=\frac{\sin }{\cos x}
$$

46. $\sec ^{2} x+2 \sec x=0$

$$
\begin{aligned}
& \begin{array}{l}
\sec x(\sec x+2)=0 \\
\sec x \neq 0 \\
\cos x=\text { und, } \\
\sec x+2=0 \\
\sec x=-2 \\
\cos x=-\frac{1}{2} \\
x=120^{\circ}, 240^{\circ}
\end{array} \\
& \left.\begin{array}{l}
x=\frac{2 \pi}{3}+2 \pi k \\
x=\frac{4 \pi}{3}+2 \pi k
\end{array}\right\} \begin{array}{l}
k=\text { integer }
\end{array}
\end{aligned}
$$

$$
\begin{aligned}
& \text { (30) }(2 \sin x-1)\left(2 \cos ^{2} x-1\right)=0 \\
& 2 \sin x-1=0 \quad 2 \cos ^{2} x-1=0 \\
& \sin x=\frac{1}{2} \quad \sqrt{\cos ^{2} x}=\sqrt{\frac{1}{2}}=\frac{\sqrt{1}}{\sqrt{2}} \\
& x=30^{\circ}, 150^{\circ} \quad \cos x= \pm \frac{\sqrt{2}}{2} \\
& x=\frac{\pi}{6}, \frac{5 \pi}{6}, \frac{\pi}{4}, \frac{3 \pi}{4}, \frac{5 \pi}{4}, \frac{2 \pi}{4}
\end{aligned}
$$

$$
\begin{aligned}
& \text { 39. } 3 \tan ^{2} x=\sqrt{3} \tan x \\
& 3 \tan ^{2} x-\sqrt{3} \tan x=0 \\
& \tan x(3 \tan x-\sqrt{3})=0 \\
& \begin{array}{l}
\tan x=0 \\
x=0^{\circ}, 180^{\circ}
\end{array} \\
& 3 \tan x-\sqrt{3}=0 \\
& \underline{\tan x}=\frac{\sqrt{3}}{3} \\
& x=0, \pi, \frac{\pi}{6}, \frac{7 \pi}{6} \\
& \left.\begin{array}{l}
x=\pi k \\
x=\frac{\pi}{6}+\pi k
\end{array}\right\} k=\operatorname{ins}_{\text {ses }}
\end{aligned}
$$

