$$2-4+4\sin^2 x-2\sin x=0$$

$$2\sin^2 x-\sin x-1=0$$

$$\sin x=\frac{1\pm\sqrt{1+8}}{4}\begin{cases}1\\-\frac{1}{2}\end{cases}$$

per tant,

$$x=\begin{cases}\frac{\pi}{2}+2k\pi\\ \frac{7\pi}{6}+2k\pi\\ \frac{11\pi}{6}+2k\pi\end{cases}\quad k\in\mathbb{Z}$$

h) $\sin x\cot x=\frac{1}{2}$

$$\sin x\cdot\frac{\cos x}{\sin x}=\frac{1}{2}$$

$$\cos x=\frac{1}{2}\iff x=\begin{cases}\frac{\pi}{3}+2k\pi\\ \frac{5\pi}{3}+2k\pi\end{cases}\quad k\in\mathbb{Z}$$

i) $\sin^2 x-1=2\cos^2 x$

com $\sin^2 x=1-\cos^2 x$

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

$$-3\cos^2 x=0$$

$$\cos x=0\iff\left\{x=\frac{\pi}{2}+k\pi\quad k\in\mathbb{Z}\right.$$

j) $2\operatorname{tg}x-3\cot x-1=0$

$$2\frac{\sin x}{\cos x}-3\frac{\cos x}{\sin x}-1=0$$

Multipliquem tota l'equació per $\sin x\cos x$:

$$2\sin^2 x-3\cos^2 x-\sin x\cos x=0$$

~~Treiem factor comú de ...~~

~~$\sin x(2\sin x-\cos x)=3\cos^2 x$~~