Assume a P-type semiconductor with the following properties

\[
\begin{align*}
N_A &= 1.0 \times 10^{18} \text{ cm}^{-3} \\
n_i &= 1.0 \times 10^{10} \text{ cm}^{-3} \\
t_{ox} &= 1.2 \text{ nm} \quad \kappa_{ox} = 3.9 \quad \kappa_{Si} = 11.8 \\
T &= 300 \text{ K}
\end{align*}
\]

and answer the following question.

1) A strong inversion layer charge corresponds to about \(10^{13}\) electrons per cm\(^3\). What is the voltage drop across the oxide when this charge is present in the semiconductor?