**Essentials of MOSFETs**

**Lecture 3.2: The Depletion Approximation**

**Short Problem**

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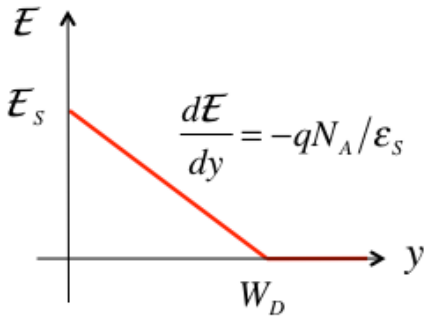
In Lecture 3.2, we discussed the depletion approximation for a P-type semiconductor, and summarized the results as shown below:

$$W_D = \sqrt{2\varepsilon_S \psi_S / qN_A} \text{ m}$$

$$\mathcal{E}_S = \frac{2\psi_S}{W_D} \text{ V/m}$$

$$Q_D = -\sqrt{2qN_A \varepsilon_S \psi_S} \text{ C/m}^2$$




1) Repeat this exercise, but for an N-type semiconductor. Give the correct equations and figure.