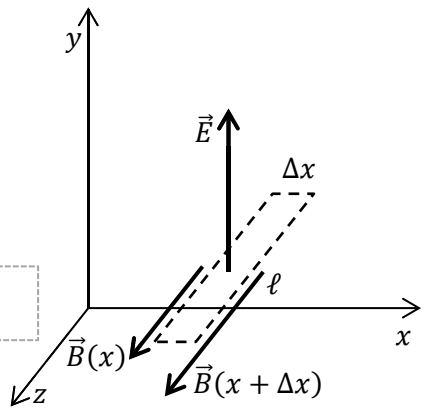
Now you try it! Let's see how a change in $\vec{E}$ will affect $\vec{B}$.

We'll make a rectangular loop Δx wide by ℓ deep, and evaluate Ampère's law:

$$\oint \vec{B} \cdot \overrightarrow{ds} = \mu_0 I_{ENC} + \mu_0 \epsilon_0 \frac{\partial \Phi_E}{\partial t}$$



Go around counter-clockwise, starting on left leg:

$$B(x)\ell + 0\Delta x + \square = 0 + \mu_0 \epsilon_0 \frac{\partial \square}{\partial t}$$

$$B(x+\Delta x) = \square$$

$$\square$$

$$\frac{\partial B}{\partial x} = \square$$

Call this equation (2)