

Illustrate forward and backward wave propagation of \mathcal{E}_x

Define some constants

$$u := 3 \cdot 10^8 \quad (\text{m/s}) \quad E_{\text{fwd}} := 1 \quad (\text{V/m}) \quad E_{\text{bwd}} := 1 \quad (\text{V/m})$$

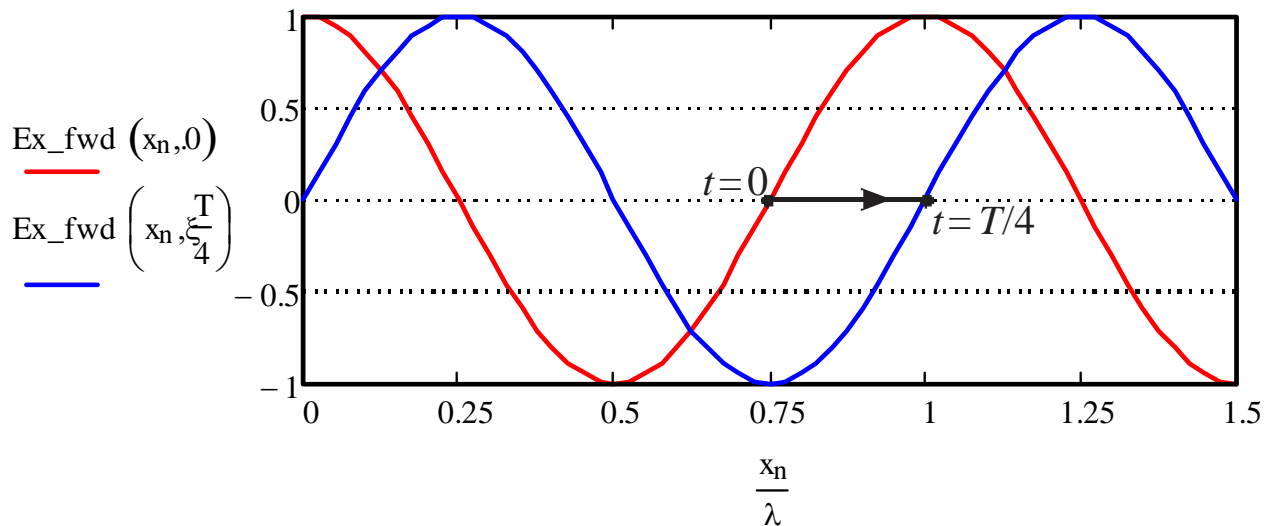
$$\omega := 2 \cdot \pi \cdot 60 \quad (\text{rad/s}) \quad \lambda := 2 \cdot \pi \cdot \frac{u}{\omega} \quad (\text{m}) \quad \beta_x := \frac{\omega}{u} \quad (\text{rad/m}) \quad T := \frac{2\pi}{\omega} \quad (\text{s})$$

Define functions for forward and backward components of the \mathcal{E}_x wave

$$E_{x_fwd}(x, t) := E_{\text{fwd}} \cdot \cos(\omega \cdot t - \beta_x \cdot x) \quad E_{x_bwd}(x, t) := E_{\text{bwd}} \cdot \cos(\omega \cdot t + \beta_x \cdot x)$$

$$n := 0 .. 60 \quad x_n := \frac{1.5 \cdot \lambda \cdot n}{60} \quad \text{Show 1.5 wavelengths}$$

Forward Traveling \mathcal{E}_x wave



Backward Traveling \mathcal{E}_x wave

