\[ r_l = \frac{2v - z_0}{2v + z_0} = \frac{25 - j25.50}{25 - j25 + 50} = -0.2 - j0.4 \]
\[ = 0.4472 e^{-j20.34^\circ} \]
\[ |r_l| = 0.4472 \]
\[ \theta_l = -116.5^\circ \]
\[ V_{\text{max}} = V_0\left(1 + |r_l|\right) = 1.4472V \]
\[ V_{\text{min}} = V_0\left(1 - |r_l|\right) = 0.5528V \]

First voltage max is given by \[ B \ z_{\text{max}} - \theta_l = n\pi \] (easiest to remember)

Let \( n = 1 \) (first location) so

\[ B \ z_{\text{max}} = \frac{\theta_l}{2} \]
\[ \frac{2\pi}{\lambda} \ z_{\text{max}} = \frac{50.25}{260} \cdot 2\pi \]

\[ \lambda = \frac{c}{10\text{MHz}} \]

\[ 2.1 \text{m} \]

\[ \frac{z_{\text{max}}}{30\text{m}} = -0.1618 \]

\[ z_{\text{max}} = -4.854\text{m} \ (\text{behind load}) \]

\[ z_{\text{min}} \text{ will be } \frac{\lambda}{4} \text{ away or } \frac{30\text{m}}{4} = 7.5\text{m} \]

\[ 7.5 - 4.854 = 2.646\text{m} \]