10.1.1.

1. $\tilde{\rho}_1(0) = \dfrac{z_0/z_1 - 1}{z_0/z_1 + 1} = \dfrac{z_0/3 \cdot 2/z_0 - 1}{z_0/3 \cdot 2/z_0 + 1} = \dfrac{2/3 - 1}{2/3 + 1} = -\dfrac{1}{5}$

2. $\tilde{\rho}_1(-\lambda_1/4) = |-1/5| e^{2j(2\pi/\lambda)(-\lambda/4)} = |-1/5| e^{-j\pi} = -1/5$

$z_1(-\lambda_1/4) = z_1\left(\dfrac{1-\tilde{\rho}_1(-\lambda_1/4)}{1+\tilde{\rho}_1(-\lambda_1/4)}\right) = \dfrac{z_0}{2}\left(\dfrac{1-(-1/5)}{1+(-1/5)}\right) = \dfrac{3z_0}{4}$

10.1.2.

1. $\dfrac{z_2(0)}{z_1} = z_0/3 \cdot 2/z_0 = 2/3 \rightarrow r = 2/3, x = 0$

2. $\tilde{\rho}_1(0) \simeq 0.2 = 1/5$ (point a)

3. $\tilde{\rho}_1(-\lambda_1/4) \simeq 1.5 = -1/5 \angle 180$ (point b)

4. $r = 1.5, x = 0$

5. $z(-\lambda_1/4) = \dfrac{z_0}{2}\left(\dfrac{1-(-1/5)}{1+(-1/5)}\right) = \dfrac{3z_0}{4}$