HW #4

P1. Problem 2.47 in 8/E, 7/E, and 6/E, i.e. **2.35** in 5/E and Answer Sheet

2.47 Use the Smith chart to find the reflection coefficient corresponding to a load impedance of

(a) $Z_L = 3Z_0$

*(b) $Z_L = (2 - j2)Z_0$

(c) $Z_L = -j2Z_0$

(d) $Z_L = 0$ (short circuit)

P2. Problem 2. 49 in 8/E, 7/E, and 6/E, i.e. **2.36** in 5/E and Answer Sheet

2.49 Use the Smith chart to find the normalized load impedance corresponding to a reflection coefficient of

(a) $\Gamma = 0.5$

(b) $\Gamma = 0.5\angle 60^\circ$

(c) $\Gamma = -1$

(d) $\Gamma = 0.3\angle -30^\circ$

(e) $\Gamma = 0$

(f) $\Gamma = j$

P3. Problem 2.52 in 8/E, 7/E, and 6/E, i.e. **2. 37** in 5/E and Answer Sheet

2.37* On a lossless transmission line terminated in a load $Z_L = 100\ \Omega$, the standing-wave ratio was measured to be 2.5. Use the Smith chart to find the two possible values of Z_0.

P4. Problem 2.55 in 8/E, 7/E, and 6/E, i.e. **2.39** in 5/E and Answer Sheet

2.39* A lossless 50-Ω transmission line is terminated in a short circuit. Use the Smith chart to find the following:

(a) The input impedance at a distance 2.3λ from the load.

(b) The distance from the load at which the input admittance is $Y_{in} = -j0.04$ S.

P5. Problem 2.58(a) in 8/E, 7/E, and 6/E, i.e. **2. 41(a)** in 5/E and Answer Sheet

2.41* A lossless 100-Ω transmission line $3\lambda/8$ in length is terminated in an unknown impedance. If the input impedance is $Z_{in} = -j2.5\ \Omega$,

(a) Use the Smith chart to find Z_L.