Special Problem 6.D-4

A transmitter with a 50 Ω output impedance deliverers 10 Watts to a transmission line with a characteristic impedance of 50 Ohms.

An antenna is located at the other end of the line, with an input impedance described by:

$$R_r = 75\,\Omega \qquad R_L = 25\,\Omega \qquad X_A = 0\,\Omega$$

1. How much power is delivered to the antenna, and how much is reflected?

2. How much of the power delivered to the antenna is radiated ?

3. What is the efficiency of this antenna ?