

### Special Problem III.D-3

An antenna has efficiency of  $e = 0.8$ .

It exhibits a reflection coefficient of  $\Gamma_A = -1/3$  when connected to a transmission line of  $Z_0 = 50\Omega$ .

The antenna is radiating a total power of  $P_{rad} = 8.0 \text{ Watts}$ .

Determine:

1. The radiation resistance of this antenna.
2. The power being converted into heat.
3. The power being reflected at the antenna port.