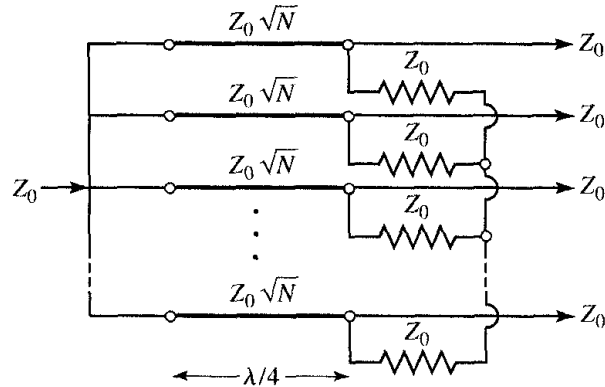


Design and sketch (e.g., Figure 7.14) a 3-way equal-split Wilkinson power divider.



**FIGURE 7.14** An  $N$ -way, equal-split Wilkinson power divider.

From Figure 7.14 and text page 332, to make a 3-way equal-split Wilkinson power divider, we need to split the incoming  $Z_0$  transmission line (port 1) into three  $\lambda/4$ -long transmission lines (TLs) with characteristic impedances of

$$Z_{N\text{-way}} = Z_0 \sqrt{N} \Rightarrow Z_{3\text{-way}} = 75 \sqrt{3} \quad \Rightarrow \underline{Z_{3\text{-way}} = 129.904 \, \Omega.}$$

The ends of these TLs need to be interconnected with resistors of value  $\Rightarrow \underline{R = Z_0 = 75 \, \Omega.}$

A one-line representation of the 3-way equal-split Wilkinson power divider for a  $75 \, \Omega$  system is shown below.

