Concept Question 2-11: How are the elements of a balanced Y circuit related to those of its equivalent circuit?


Figure 2-33: $\mathrm{Y}-\Delta$ equivalent circuits.

$$
\begin{array}{ll}
R_{1}=\frac{R_{b} R_{c}}{R_{a}+R_{b}+R_{c}} & R_{a}=\frac{R_{1} R_{2}+R_{2} R_{3}+R_{1} R_{3}}{R_{1}} \\
R_{2}=\frac{R_{a} R_{c}}{R_{a}+R_{b}+R_{c}} & R_{b}=\frac{R_{1} R_{2}+R_{2} R_{3}+R_{1} R_{3}}{R_{2}} \\
R_{3}=\frac{R_{a} R_{b}}{R_{a}+R_{b}+R_{c}} & R_{c}=\frac{R_{1} R_{2}+R_{2} R_{3}+R_{1} R_{3}}{R_{3}}
\end{array}
$$

