**Problem 2.31** Find $I_0$ in the circuit of Fig. P2.31. Hint: Use the current division method.
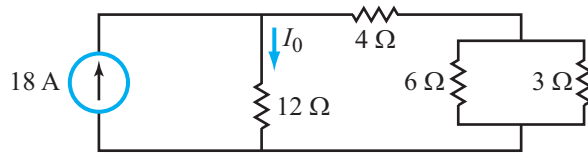


Figure P2.31: Circuit for Problem 2.31.

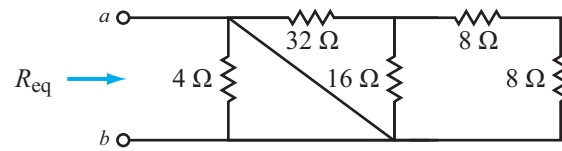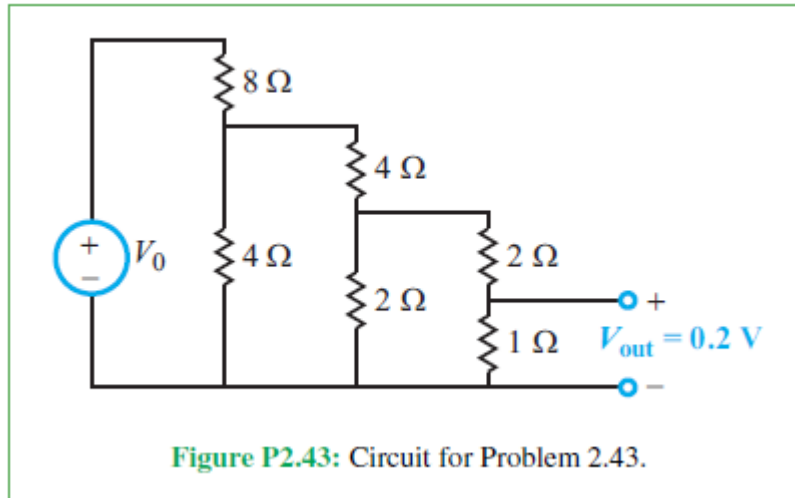**Problem 2.33** Determine $R_{eq}$ at terminals $(a,b)$ in the circuit of Fig. P2.33.
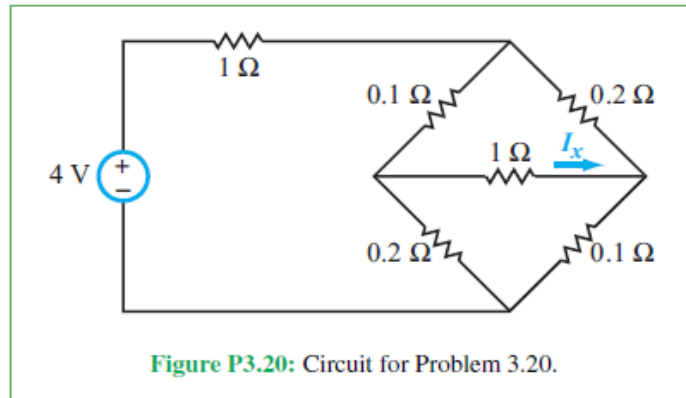


Figure P2.33: Circuit for Problem 2.33.

**Problem 2.39** Find $R_{eq}$ at terminals $(c,d)$ in the circuit of Fig. P2.38.

**Problem 2.43** Apply voltage and current division to determine $V_0$ in the circuit of Fig. P2.43 given that $V_{out} = 0.2$ V.



**Figure P2.43:** Circuit for Problem 2.43.

**Problem 3.20** For the circuit in **Fig.** P3.20, determine the current $I_x$. Use Node-Voltage Technique.



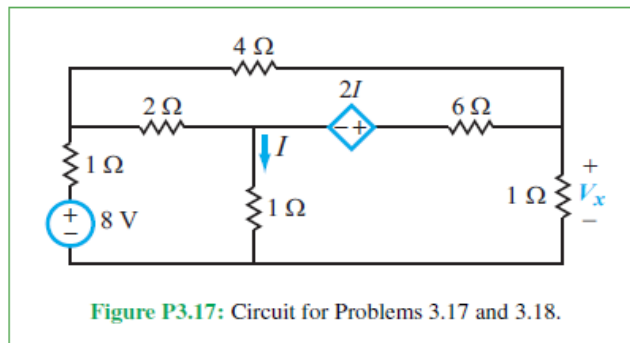Figure P3.20: Circuit for Problem 3.20.

**Problem 3.15** Use the supernode concept to find the current $I_x$ in the circuit of
Fig. P3.15.
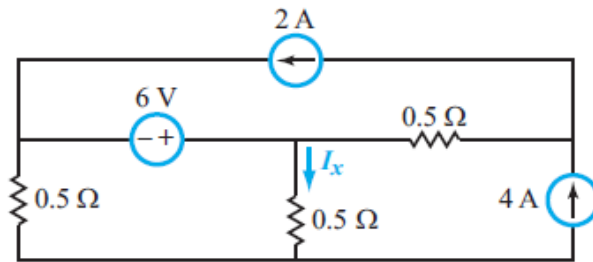


**Figure P3.15:** Circuit for Problem 3.15.

**Problem 3.17** Determine $V_x$ in the circuit of **Fig.** P3.17.   Use Node-Voltage Technique.



**Figure P3.17**: Circuit for Problems 3.17 and 3.18.

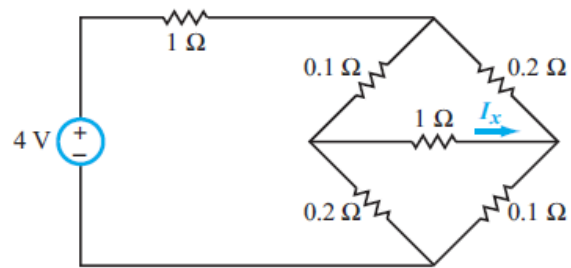**Problem 3.43**   Apply mesh analysis to the circuit of Fig. P3.43 to find $I_x$.
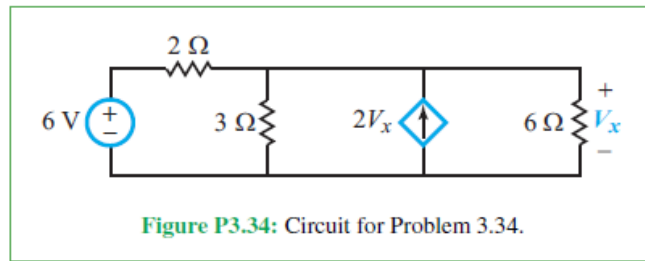


Figure P3.43: Circuit for Problem 3.43.

**Problem 3.34** Apply mesh analysis to the circuit in Fig. P3.34 to determine $V_x$.



**Figure P3.34:** Circuit for Problem 3.34.

**Problem 3.47** Apply mesh analysis to determine $I_0$ in the circuit in Fig. P3.47.



**Figure P3.47** Circuit of Problem 3.47.