Chapter 6, Solution 33

Because this is a totally capacitive circuit, we can combine all the capacitors using the property that capacitors in parallel can be combined by just adding their values and we combine capacitors in series by adding their reciprocals. However, for this circuit we only have the three capacitors in parallel.

3 F + 2 F = 5 F (we need this to be able to calculate the voltage)

$C_{Th} = C_{eq} = 5+3+2 = 10$ F

The voltage will divide equally across the two 5 F capacitors. Therefore, we get:

$$V_{Th} = \mathbf{15\ V}, \quad C_{Th} = \mathbf{10\ F}.$$

15 V, **10 F**