Concept Question 5-11: Compare the voltage-division equation for two capacitors in series with that for two resistors in series. Are they identical or different in form?

## Voltage Division



$$
\begin{aligned}
& \text { (a) } v_{1}=\left(\frac{R_{1}}{R_{1}+R_{2}}\right) v_{\mathrm{s}} \\
& \text { (b) } v_{1}=\left(\frac{C_{2}}{C_{1}+C_{2}}\right) v_{\mathrm{s}} \\
& v_{2}=\left(\frac{R_{2}}{R_{1}+R_{2}}\right) v_{\mathrm{s}} \\
& v_{2}=\left(\frac{C_{1}}{C_{1}+C_{2}}\right) v_{\mathrm{s}}
\end{aligned}
$$

Figure 5-19: Voltage-division rules for (a) in-series resistors and (b) in-series capacitors.

For resistors, $v_{1}$ is proportional to $R_{1}$, whereas for capacitors, $v_{1}$ is proportional to $C_{2}$.

