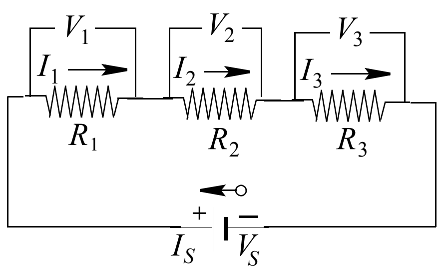
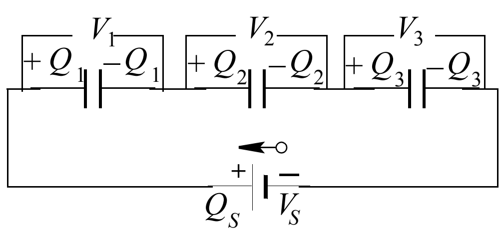
**Table 1: The Golden Rule**

| S or P | Circuit | I or Q | V | The law for R or C | The law for Battery | The Equivalent Resistor $R_{eq}$ or Capacitor $C_{eq}$ |
|---|---|---|---|---|---|---|
| R in series |  | $I_1 = I_2 = I_3 = I_S$ | $V_1 + V_2 + V_3 = V_S$ | $V = R\,I$ <br> $I = VR$ | $V_S = R_{eq}\,I_S$ | $\boldsymbol{R_{eq} = \sum_n R_n}$ <br> 2 in series <br> $\boldsymbol{R_{eq}} = R_1 + R_2$ |
| C in series |  | $Q_1 = Q_2 = Q_3 = Q_S$ | | $Q = C\,V$ <br> $V = Q/C$ | $Q_S = C_{eq}\,V_S$ | $\boldsymbol{C_{eq} = \left[\sum_n \frac{1}{C_n}\right]^{-1}}$ <br> 2 in series <br> $C_{eq} = \frac{C_1 C_2}{C_1 + C_2}$ |

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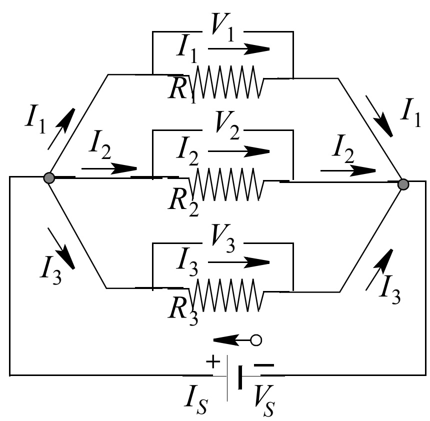
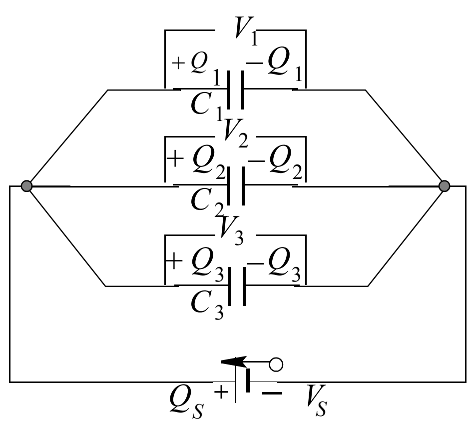
<table>
<tr><th rowspan="2">S or P</th><th rowspan="2">Circuit</th><th rowspan="2">I or Q</th><th rowspan="2">V</th><th colspan="2">The law for</th><th>The Equivalent</th></tr>
<tr><th>R or C</th><th>Battery</th><th>Resistor $R_{eq}$ or Capacitor $C_{eq}$</th></tr>
<tr><td>R in paral-lel</td><td>
</td><td>$I_1 + I_2 + I_3 = I_S$</td><td rowspan="2">$V_1 = V_2 = V_3 = V_S$</td><td>$V = R\,I \quad I = V/R$</td><td>$V_S = R_{eq} I_S$</td><td>$R_{eq} = \left[\sum_n \frac{1}{R_n}\right]^{-1}$<br>2 in parallel<br>$R_{eq} = \frac{R_1 R_2}{R_1 + R_2}$</td></tr>
<tr><td>C in paral-lel</td><td>
</td><td>$Q_1 + Q_2 + Q_3 = Q_S$</td><td>$Q = C\,V \quad V = Q/C$</td><td>$Q_S = C_{eq} V_S$</td><td>$C_{eq} = \sum_n C_n$<br>2 in parallel<br>$C_{eq} = C_1 + C_2$</td></tr>
</table>