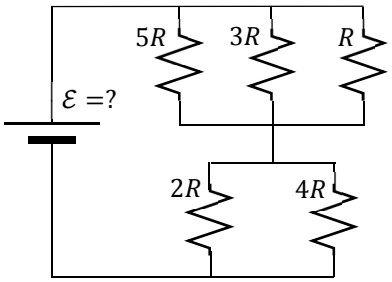
27.11½ Consider the circuit at right. Assume all resistances are known but potential difference across the battery is unknown. A student uses an ammeter in the lab and discovers current through resistor $2R$ is I.

a) Determine equivalent resistance of the circuit.
b) Determine potential difference across the battery.



27.11$\frac{3}{4}$ In the circuit at right, all resistances are R with the exception of the one in the figure marked r. Assume R is known but r is unknown. Potential difference $\mathcal{E}$ across the battery is known. Furthermore, a student discovers power deliver by the battery changes by 5.55% when the switch is closed.

a) Does total resistance *increase* or *decrease* when the switch is closed?
b) Does power delivered by the battery *increase* or *decrease* by 5.55%?
c) Determine the resistance r as decimal number with 3 sig figs times R.