87. Requiring no current through the $10.0\,\Omega$ resistor means that 20.0 V will be across R (which has current i_R). The current through the $20.0\,\Omega$ resistor is also i_R, so the loop rule leads to

$$50.0\,\text{V} - 20.0\,\text{V} - i_R\,(20.0\,\Omega) = 0$$

which yields $i_R = 1.5$ A. Therefore,

$$R = \frac{20.0\,\text{V}}{i_R} = 13.3\ \Omega\ .$$