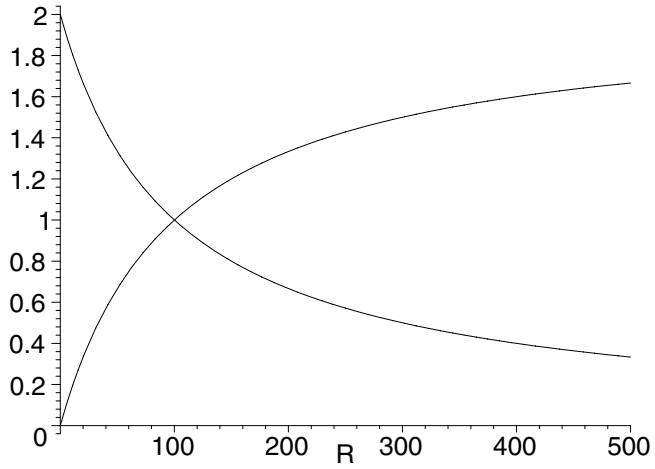
8. (a) Below, we graph Eq. 28-4 (scaled by a factor of 100) for $\mathcal{E} = 2.0\,\text{V}$ and $r = 100\,\Omega$ over the range $0 \leq R \leq 500\,\Omega$. We multiplied the SI output of Eq. 28-4 by 100 so that this graph would not be vanishingly small with the other graph (see part (b)) when they are plotted together.

(b) In the same graph, we show $V_R = iR$ over the same range. The graph of current i is the one that starts at 2 (which corresponds to 0.02 A in SI units) and the graph of voltage V_R is the one that starts at 0 (when $R = 0$). The value of V_R are in SI units (not scaled by any factor).



(c) In our final graph, we show the dependence of power $P = iV_R$ (dissipated in resistor R) as a function of R. The units of the vertical axis are Watts. We note that it is maximum when $R = r$.