35. A Carnot refrigerator working between a hot reservoir at temperature T_{H} and a cold reservoir at temperature T_{L} has a coefficient of performance K that is given by $K = T_{\mathrm{L}}/(T_{\mathrm{H}} - T_{\mathrm{L}})$. For the refrigerator of this problem, $T_{\mathrm{H}} = 96^\circ\,\mathrm{F} = 309\,\mathrm{K}$ and $T_{\mathrm{L}} = 70^\circ\,\mathrm{F} = 294\,\mathrm{K}$, so $K = (294\,\mathrm{K})/(309\,\mathrm{K} - 294\,\mathrm{K}) = 19.6$. The coefficient of performance is the energy Q_{L} drawn from the cold reservoir as heat divided by the work done: $K = |Q_{\mathrm{L}}|/|W|$. Thus, $|Q_{\mathrm{L}}| = K|W| = (19.6)(1.0\,\mathrm{J}) = 20\,\mathrm{J}$.