27. **SSM** ***REASONING*** According to Equation 6.10b, the energy used is Energy = Pt, where P is the power and t is the time. According to Equation 20.6a, the power is $P = IV$, where I is the current and V is the voltage. Thus, Energy = IVt, and we apply this result first to the dryer and then to the computer.

SOLUTION The energy used by the dryer is

$$\text{Energy} = Pt = IVt = (16\text{ A})(240\text{ V})(45\text{ min})\left(\frac{60\text{ s}}{1.00\text{ min}}\right) = 1.04\times10^{7}\text{ J}$$

Converts minutes to seconds

For the computer, we have

$$\text{Energy} = 1.04\times10^{7}\text{ J} = IVt = (2.7\text{ A})(120\text{ V})t$$

Solving for t we find

$$t = \frac{1.04\times10^{7}\text{ J}}{(2.7\text{ A})(120\text{ V})} = 3.21\times10^{4}\text{ s} = (3.21\times10^{4}\text{ s})\left(\frac{1.00\text{ h}}{3600\text{ s}}\right) = \boxed{8.9\text{ h}}$$