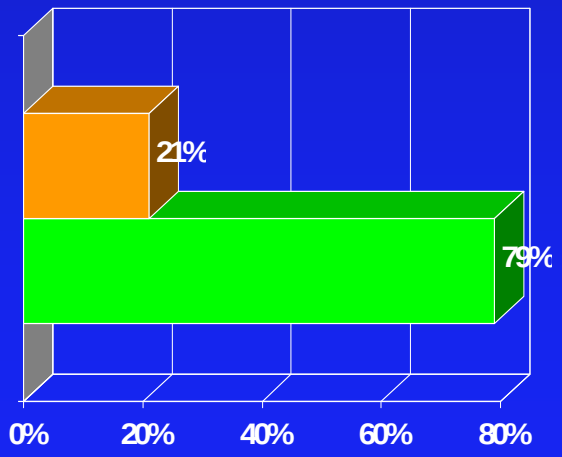
Preflight Lect 27

Consider a hypothetical device that takes 1000 J of heat from a hot reservoir at 300K, ejects 200 J of heat to a cold reservoir at 100K, and produces 800 J of work.

Does this device violate the first law of thermodynamics ?

1. Yes
2. No ⟵ correct



- W (800) = Q_{hot} (1000) - Q_{cold} (200)
- Efficiency = W/Q_{hot} = 800/1000 = 80%

80% efficient
20% efficient
25% efficient