



The diagram shows a heat engine operating between two thermal reservoirs. The top reservoir is at temperature  $T_H = 400\text{ K}$  and the bottom reservoir is at temperature  $T_C = 300\text{ K}$ . A curved line represents the engine cycle. An upward arrow from the top reservoir is labeled  $Q_H = +6000\text{ J}$ , indicating heat input. A leftward arrow from the cycle is labeled  $W = 6000\text{ J}$ , indicating work output.

$$T_H = 400\text{ K}$$

$$Q_H = +6000\text{ J}$$

$$W = 6000\text{ J}$$

$$T_C = 300\text{ K}$$

$\Delta S_H =$
$\Delta S_C = 0\text{ J/K}$
$\Delta S_{NET} =$
Possible?