Heat Engine

$Q_C < 0$ wasted heat leaves the system
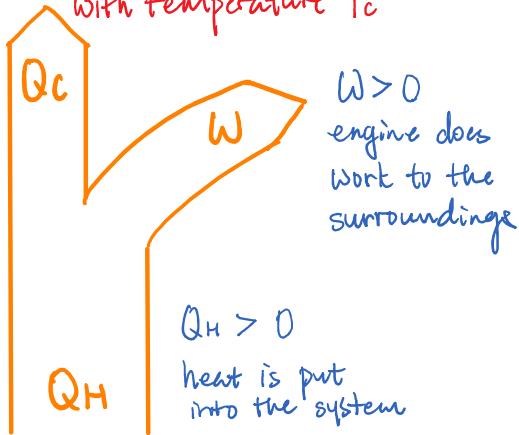
Cold resevoir with temperature T_C

Q_C

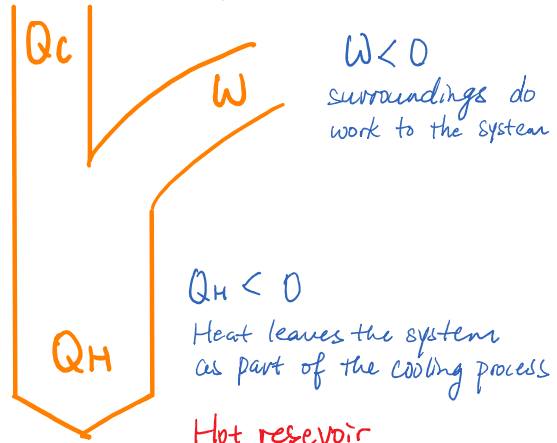W $W > 0$ engine does work to the surroundings

$Q_H > 0$ heat is put into the system

Q_H

Hot resevoir with temperature T_H

Refrigerators

$Q_C > 0$ Heat is removed from the cold region and enter the system

Cold resevoir with temperature T_C

Q_C

W $W < 0$ surroundings do work to the system

$Q_H < 0$ Heat leaves the system as part of the cooling process

Q_H

Hot resevoir with temperature T_H