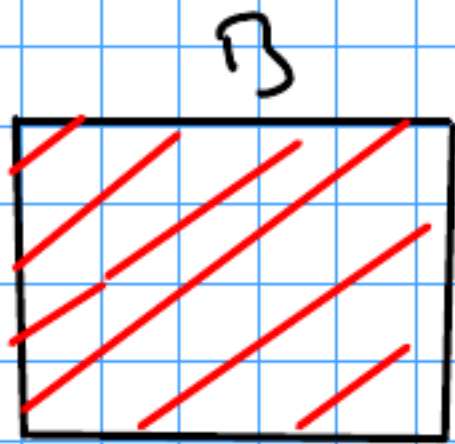
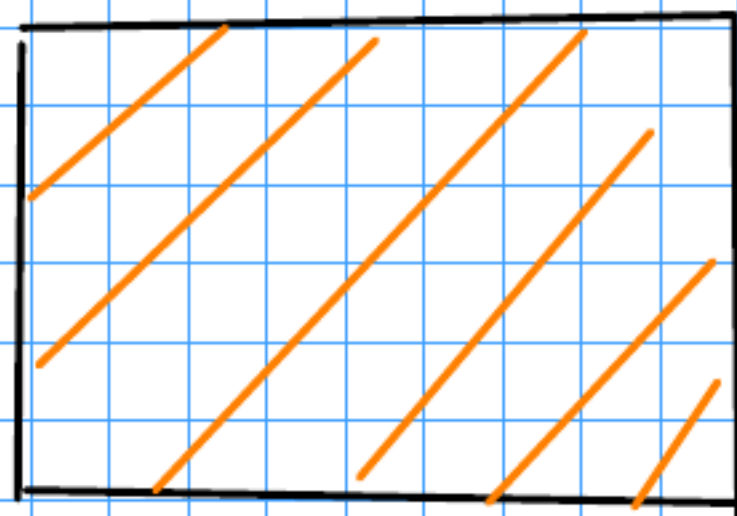


$m_a, T_a,$
 c_a



$m_b, T_b,$
 c_b

isolator



m_m, T_m

$$T_m = \frac{m_a c_a T_a + m_b c_b T_b}{m_a c_a + m_b c_b}$$

$$\Delta S = m_a c_a \ln \frac{T_m}{T_a} + m_b c_b \ln \frac{T_m}{T_b} > 0$$

$$m_m = m_a + m_b$$

$$\begin{aligned}
 (x) &= \frac{\Delta S}{m_a c_a + m_b c_b} = \frac{m_a c_a}{m_a c_a + m_b c_b} \ln \frac{T_{fi}}{T_a} + \frac{m_b c_b}{m_a c_a + m_b c_b} \ln \frac{T_{fi}}{T_b} \\
 & \qquad \qquad \qquad x, y > 0, \quad x + y = 1
 \end{aligned}$$

$$T_{fi} = x T_a + y T_b$$

$$\begin{aligned}
 (x) &= \underbrace{x \ln T_{fi}} - x \ln T_a + \underbrace{y \ln T_{fi}} - y \ln T_b \\
 &= \ln T_{fi} - (x \ln T_a + y \ln T_b) \\
 &= \ln (x T_a + y T_b) - (x \ln T_a + y \ln T_b) \\
 &> \ln T_{fi} - (\ln T)_{fi} \\
 &> 0
 \end{aligned}$$

