Reconsider the example from last time. Here are some relevant properties:

1. $T = 300 \, \text{K}, P = 100 \, \text{kPa}$
2. $T = 573 \, \text{K}, P = 1000 \, \text{kPa}$
3. $T = 1300 \, \text{K}, P = 1000 \, \text{kPa}$
4. $T = 726 \, \text{K}, P = 100 \, \text{kPa}$

Below is a to-scale $T$-$s$ diagram. Show the cycle on the diagram.

Using the diagram above, suggest a way you could improve the efficiency of the cycle. (Hints: Write an expression for efficiency, and consider the relative temperatures of the various state points.)
Now draw a number of open steady-state devices connected end-to-end that could accomplish this increase in efficiency. (Hint: You will need one extra open system device not included in the standard Brayton cycle.)

For ideal regeneration:

\[ \frac{T_x - T_2}{T_4 - T_2} = \frac{h_x - h_2}{h_y - h_2} \]

Otherwise:

\[ T_x < T_4 \]

If cold air standard.