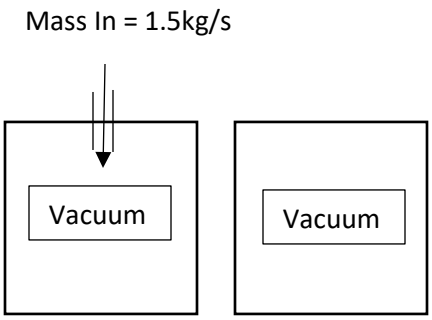

Figure 1

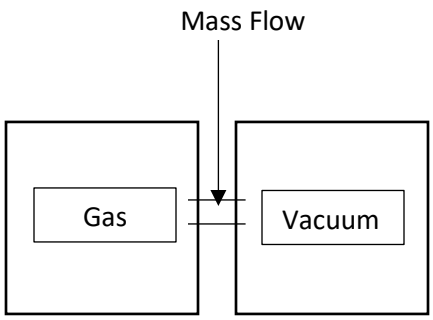

Figure 2

You are an engineer studying the second law of thermodynamics at the local university. You have 2 separate boxes that are both sealed to vacuum. You begin to add Mass In, which is water vapor, to the system in Figure 1 until 2 seconds go by. We can assume this process is reversible and adiabatic. The pressure of the Mass In is 10 KPa and can be assumed that it is saturated vapor. Once Mass In stops, Mass Flow begins into the second open Vacuum box illustrated in Figure 2 until they reach equilibrium. Both boxes are identical in shape. There is a heat flow into the system with the Gas in figure 2 at room temperature and equal to 15KJ.

1. What is the change in Entropy from the first process in Figure 1.
2. What is S_{gen}?