Problem discussed in the videos:

Videos (4) – (7)
Tea time on the mountain
After a grueling climb to the top of Mount Dinali, an intrepid British mountaineer decides to celebrate with a cup of tea. At this high altitude, the boiling point of water is $T_{boil}$ = 77°C. After he pours his tea, the mountaineer places the kettle directly on the snow, which is very cold, $T_{snow}$ = -23°C. The kettle initially contains 2kg of steam at 77°C. The top of the kettle is well insulated so that no heat is exchanged between the kettle and the air.
a) How much heat, $Q$, must be exchanged between the snow and the kettle to condense all the steam in the kettle into liquid water at 77°C? The latent heat of vaporization for water at this altitude is $L_{vapor} \approx 2 \times 10^6$ j/kg. Take care with signs and clearly indicate whether heat enters or leaves the kettle.
b) What is the change in entropy inside the kettle due to the condensation of the steam?
c) What is the change in entropy of the snow during this process?
d) What is the change in entropy in the universe as a result of this process? Please indicate whether this is positive, negative, or zero.