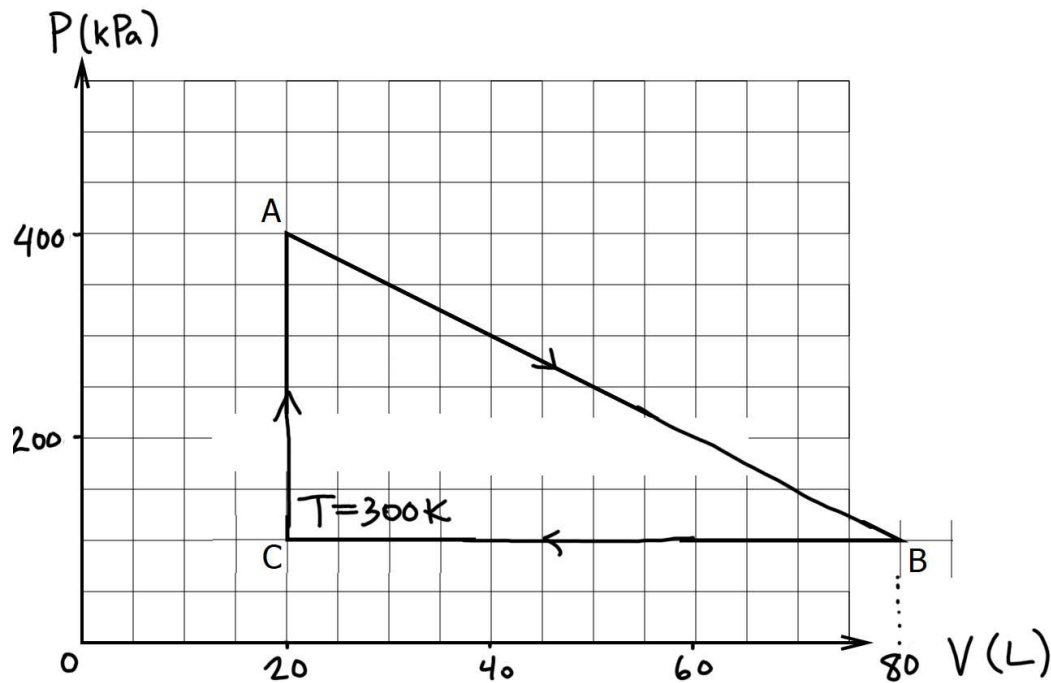


Bonus problem (optional and not for credit, but you can win something):

Here's a cycle similar to the one in last week's tutorial. We assume that the gas is a monatomic ideal gas with $C_v = 3/2R$.



a) What is the maximum temperature reached by the gas on this cycle? At what volume does this happen?

Hint: it's not on one of the corners.

b) During the path from A to B, a net heat flows into the gas, but actually, heat flows in for part of this process and then out again. What is the amount of heat that flows in to the gas during the first part of this process and at what volume does heat stop flowing in and start flowing out?

Hint: the place where heat stops flowing in is not the place where the temperature is maximum. To find the right volume, you need to calculate the heat for a small change in volume. This will vanish in exactly one place along A \rightarrow B.

If you think you have a solution, submit a photo or pdf of your solution to Canvas (in the HW5 bonus assignment) before 10pm on Sunday, October 27th . If your solution is correct, your name will be entered into a draw to win a fabulous prize!