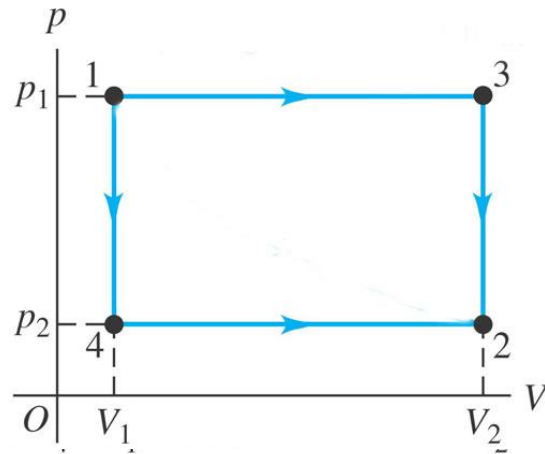


- d. During the compression process, does the gas absorb heat, release heat, not exchange heat, or is it impossible to tell? Explain your answer.

4. Consider the closed loop process $1 \rightarrow 3 \rightarrow 2 \rightarrow 4 \rightarrow 1$ (almost) shown in the p - V plot to the right. (Ignore the arrow directions.) This is a cyclic process for which the initial and final states are the same.



- a. Find the work done in the following steps:

$1 \rightarrow 3$

$3 \rightarrow 2$

$2 \rightarrow 4$

$4 \rightarrow 1$

- b. What is the total work done in the cycle $1 \rightarrow 3 \rightarrow 2 \rightarrow 4 \rightarrow 1$?

- c. What is the total work done in the reverse cycle $1 \rightarrow 4 \rightarrow 2 \rightarrow 3 \rightarrow 1$?