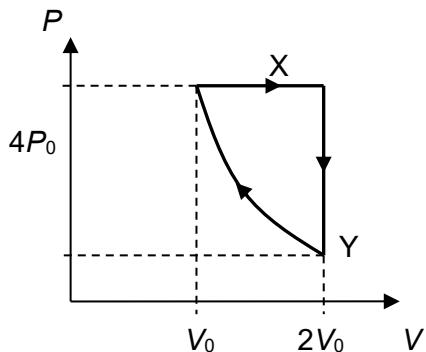


A fixed mass of monatomic ideal gas undergoes a constant pressure expansion to double its initial volume. Its pressure is then reduced to a quarter of the original at constant volume. The gas is then returned to its initial state in the  $P$ - $V$  diagram below.



Which of the following statements about the processes is **not** necessarily true?

**A**

There is no heat exchange in process Z.

**B**

Work done by the gas in process X is  $4P_0V_0$ .

**C**

Heat is removed from the system in process Y.

D

Temperature of the gas is doubled in process X.