

## Chapter 3 Question #5

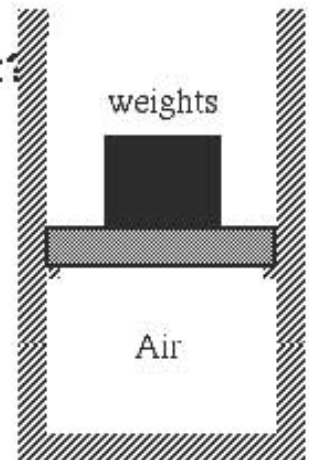
Sketch each process on a p-V diagram:

- 1) All of the weights are removed from the piston instantaneously and the gas expands until its volume is increased by a factor of four (a free expansion).
- 2) Half of the weight is removed from the piston instantaneously, the system is allowed to double in volume, and then the remaining half of the weight is instantaneously removed from the piston and the gas is allowed to expand until its volume is again doubled.
- 3) Each small weight is removed from the piston one at a time, so that the pressure inside the cylinder is always in equilibrium with the weight on top of the piston. When the last weight is removed, the volume has increased by a factor of four.

For which is the work done by the system the greatest?

- 1) 1
- 2) 2
- 3) 3
- 4) They are all the same

A



**Chapter 3 Question 5 Answer:**

**(3)**

The work done by the system is the greatest in case three. The most weight is lifted over the greatest distance.

Class Response:

Question 2 : Question 2

