

**1.25** A gas contained within a piston-cylinder assembly undergoes four processes in series:

**Process 1-2:** Constant-pressure expansion at 1 bar from  $V_1 = 0.5 \text{ m}^3$  to  $V_2 = 2 \text{ m}^3$

**Process 2-3:** Constant volume to 2 bar

**Process 3-4:** Constant-pressure compression to  $1 \text{ m}^3$

**Process 4-1:** Compression with  $pV^{-1} = \text{constant}$

Sketch the process in series on a  $p$ - $V$  diagram labeled with pressure and volume values at each numbered state.

