

- 3 (a) State the first law of thermodynamics. Identify the meaning of any symbols that you use.
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- [2]
- (b) The state of an ideal gas is continuously changed according to the cycle ABCDA shown in Fig. 3.1.

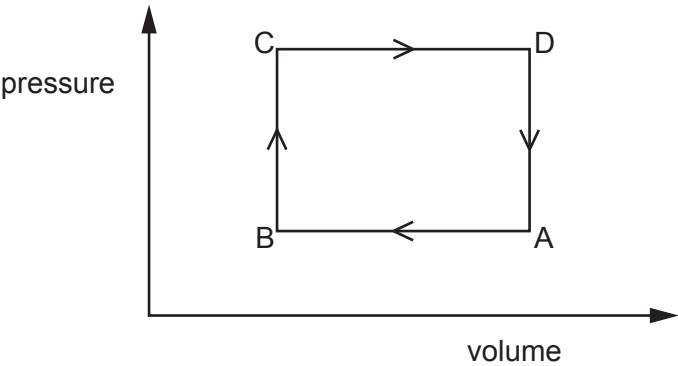


Fig. 3.1

- (i) Complete Table 3.1 for the changes A to B and B to C by placing two ticks (✓) in each row.

Table 3.1

change	change in internal energy			work done on gas		
	decrease	no change	increase	negative	zero	positive
A to B						
B to C						

[4]

- (ii) Use the first law of thermodynamics to describe and explain the energy transfers associated with one complete cycle ABCDA.

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..... [3]