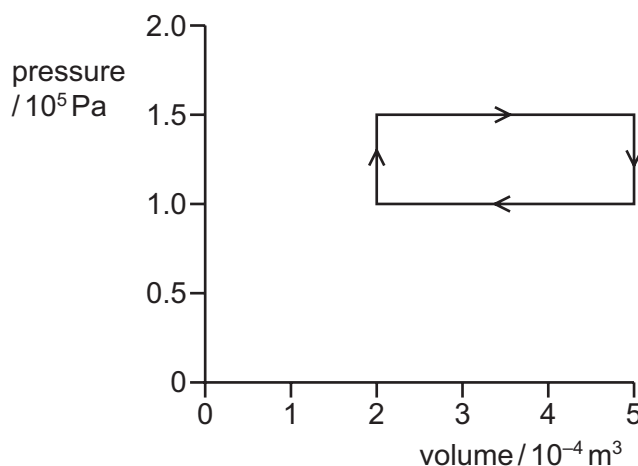


- 16** A fixed amount of a gas undergoes a series of changes to its pressure and volume.

In two of the changes, no work is done by or on the gas. In one change work is done by the gas on its surroundings. In another change work is done on the gas by its surroundings.



During the change when work is done on the gas by its surroundings, how much work is done on the gas?

- A** 15 J                      **B** 25 J                      **C** 30 J                      **D** 45 J
- 17** An object travelling with a speed of  $10 \text{ m s}^{-1}$  has kinetic energy 1500 J.

The speed of the object is increased to  $40 \text{ m s}^{-1}$ .

What is the new kinetic energy of the object?

- A** 4500 J                      **B** 6000 J                      **C** 24 000 J                      **D** 1 350 000 J
- 18** The engine of a car exerts a force of 600 N in moving the car 1.0 km in 150 seconds.
- What is the average useful output power of the engine?
- A** 4.0 W                      **B** 4.0 kW                      **C** 90 kW                      **D** 90 MW