

- 14** A cylinder contains a volume of  $0.012 \text{ m}^3$  of gas at a pressure of  $1.0 \times 10^5 \text{ Pa}$ .

400 J of work is done **on** this gas, with its pressure remaining constant throughout.

What is the final volume of the gas?

- A**  $0.0040 \text{ m}^3$       **B**  $0.0080 \text{ m}^3$       **C**  $0.016 \text{ m}^3$       **D**  $0.020 \text{ m}^3$

- 15** A ball is thrown vertically upwards from the surface of the Earth.

Which statement describes the energy of the ball as it rises through the air?

- A** The kinetic energy of the ball decreases as the gravitational potential energy decreases.  
**B** The kinetic energy of the ball decreases as the gravitational potential energy increases.  
**C** The kinetic energy of the ball increases as the gravitational potential energy decreases.  
**D** The total energy of the ball increases.

- 16** A sledge of mass 50 kg sits on a snowy surface. It is pulled horizontally for 10 m against a frictional force of 200 N, then it is pulled horizontally across ice for 10 m. There is no friction between the ice and the sledge. It is lifted up vertically by 1 m and finally carried back at a constant speed to where it started.

During which stage of its journey is most work done on the sledge?

- A** being carried back 20 m at constant speed  
**B** being lifted up 1 m  
**C** being pulled 10 m across ice  
**D** being pulled 10 m across snow