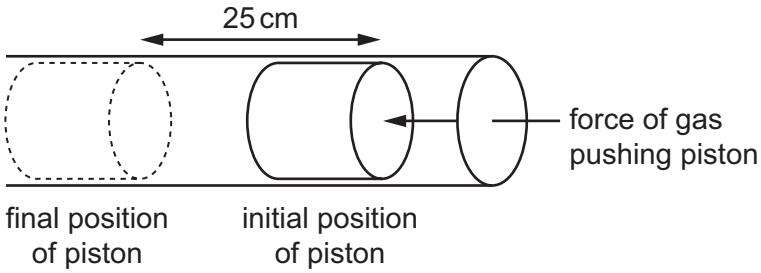
17 The gas in an engine does work on a piston of cross-sectional area 80 cm^2. The pressure on the piston has a constant value of 4.6×10^5 Pa.



How much work is done by the gas on the piston when it moves through a distance of 25 cm?

A 9.2×10^2 J **B** 9.2×10^4 J **C** 9.2×10^6 J **D** 9.2×10^8 J

18 A loaded aeroplane has a total mass of 1.2×10^5 kg while climbing after take-off. It climbs at an angle of 23° to the horizontal with a speed of 50 $m\,s^{-1}$. What is the rate at which it is gaining potential energy at this time?

A 2.3×10^6 $J\,s^{-1}$

B 2.5×10^6 $J\,s^{-1}$

C 2.3×10^7 $J\,s^{-1}$

D 2.5×10^7 $J\,s^{-1}$

19 When a horizontal force *F* is applied to a frictionless trolley over a distance *s*, the kinetic energy of the trolley changes from 4.0 J to 8.0 J.

If a force of 2*F* is applied to the trolley over a distance of 2*s*, what will the original kinetic energy of 4.0 J become?

A 16 J **B** 20 J **C** 32 J **D** 64 J

20 When ice melts, it contracts.

Which row is correct for ice turning into water?

	distance between molecules	density
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases