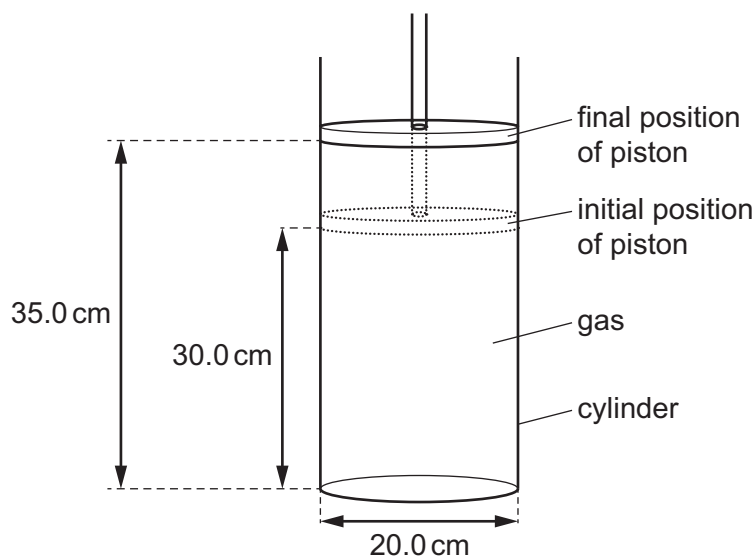


- 16 A gas is contained in a cylinder by a movable piston.



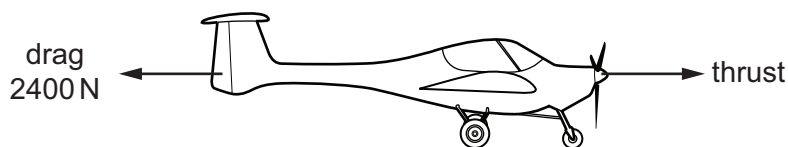
The cylinder has a circular cross-section of diameter 20.0 cm.

The pressure of the gas is 102 Pa and the piston is initially 30.0 cm from the base of the cylinder.

The gas is heated causing the piston to move up so that it is 35.0 cm from the base. The pressure of the gas remains constant.

How much work does the gas do in moving the piston?

- A** 0.160 J **B** 0.641 J **C** 1.12 J **D** 4.49 J
- 17 An egg of mass 25 g falls vertically downwards from the surface of a table which is 900 mm above the ground. Air resistance is negligible.
- What is the kinetic energy of the egg when it hits the ground?
- A** 0.023 J **B** 0.22 J **C** 23 J **D** 220 J
- 18 An aircraft travels at a constant velocity of 90 ms^{-1} in horizontal flight. The diagram shows the horizontal forces acting on the aircraft.



The mass of the aircraft is 2000 kg.

What is the power produced by the thrust force?

- A** $1.8 \times 10^5 \text{ W}$ **B** $2.2 \times 10^5 \text{ W}$ **C** $1.8 \times 10^6 \text{ W}$ **D** $2.0 \times 10^6 \text{ W}$