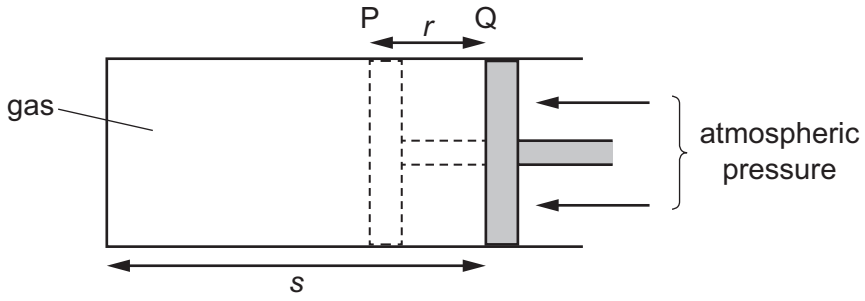
14 Gas is trapped inside a cylinder by a piston of cross-sectional area *A*. The piston is **not** frictionless.



The gas is heated and this causes it to expand, pushing back the piston through distance *r* from position P to position Q. The length of the gas column is then *s*.

Which expression represents the amount of work done by the gas against the atmosphere during this expansion?

A (atmospheric pressure) × *Ar*

B (atmospheric pressure) × *As*

C (pressure inside the gas) × *Ar*

D (pressure inside the gas) × *As*

15 Water from a reservoir is fed to the turbine of a hydroelectric system at a rate of 510 kg s^{-1}. The reservoir is 280 m above the level of the turbine.

The electrical output from the generator driven by the turbine is a current of 205 A at a potential difference of 5800 V.

What is the efficiency of the system?

A 8.3% **B** 12% **C** 83% **D** 85%