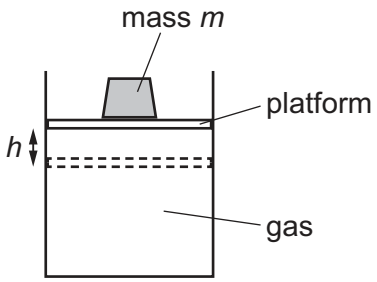
15 A mass m is on top of a platform that is supported by gas in a cylinder of cross-sectional area A, as shown.



The platform has negligible mass and can move freely up and down.

The gas is heated and expands so that the mass is raised through a height h. Atmospheric pressure is p.

What is the ratio $\dfrac{\text{gain in gravitational potential energy of the mass}}{\text{work done by the gas}}$?

A $\dfrac{mg}{pA}$ **B** $\dfrac{mg}{mg + pA}$ **C** $\dfrac{pA}{mg}$ **D** $\dfrac{mg - pA}{mg}$