Thermodynamics

Cambridge International AS & A Level Physics

> *Unlike IGCSE, 9702 gives you a data sheet: it is page 2 of Papers 1, 2 and 4, with more formulae on page 3 of Paper 4. Everything marked GIVEN is printed for you; everything else you must recall. Compiled by GioPhysics from the published syllabus. This is an independent study aid, not a Cambridge document; the official syllabus is the authority.*

16.1 Internal energy

A LEVEL

Work done by an expanding gas

$$W = p\Delta V$$

W — work done (J)
p — pressure (Pa)
ΔV — change in volume (m³)

At constant pressure.

16.2 The first law of thermodynamics

A LEVEL

First law of thermodynamics

$$\Delta U = q + W$$

ΔU — increase in internal energy (J)
q — energy supplied by heating (J)
W — work done on the system (J)