

數學作業：

- (a) Two 50g ice cubes are dropped into 200g of water in a thermally insulated container. If the water is initially at 25 °C, and the ice comes directly from a freezer at -15 °C, what is the final temperature of the drink when the drink reaches thermal equilibrium?

(b) What is the final temperature if only one ice cube is used?
- Air that initially occupies 0.14 m³ at a gauge pressure of 103 kPa is expanded isothermally to a pressure of 101.3 kPa and then cooled at constant pressure until it reaches its initial volume. Compute the work done by the air.
- Show that the area enclosed by the Carnot cycle on the temperature-entropy plot represents the net energy transfer per cycle as heat to the working substance.