

9 The laws of thermodynamics – Part 2 —Answers

Answers

Work through these after you have tried the questions yourself.

2.1 its temperature (the total kinetic energy of its particles).

2.2 $\Delta U = Q + W = 400 + 100 = 500 \text{ J}$.

2.3 work done on the gas is $W = -250 \text{ J}$, so $\Delta U = Q + W = 600 + (-250) = 350 \text{ J}$.

2.4 heat flows from the hot object to the cold object; this is set by the second law of thermodynamics.

2.5 the second law says total entropy (disorder) never decreases, and spread-out energy has higher entropy than concentrated energy, so energy naturally disperses.