

Answers to selected questions

Chapter 10

Q6. No. The temperature 0 K is absolute zero, a lowest limit that can be approached but never reached. There is no lower temperature.

Q12. Yes. If the substance is undergoing a change in phase, such as from solid to liquid or liquid to gas, heat can be added without changing the temperature.

Q18. No. According to the first law of thermodynamics, the effect on the system is the same regardless of whether the energy has been added in the form of heat or work.

Q24. No. Since the gas is held at constant volume, it can do no work on the surroundings. By the first law of thermodynamics, the heat added will then increase the internal energy and thus the temperature.

Q30. Conduction of heat through the glass is the primary mechanism of heat transfer, although convection via air currents flowing past the glass also plays a role.