

H&R-19-2

Suppose the temperature of a gas at the boiling point of water is 373.15 K. What then is the limiting value of the ratio of the pressure of the gas at that boiling point to its pressure at the triple point of water? (Assume the volume of the gas is the same at both temperatures)

S-19-2

In a constant volume gas thermometer, the pressure at 20 °C is 0.980 atm. What is the pressure if the temperature is 45 °C? What is the temperature if the pressure is 0.500 atm?

Q-

- What is 136 °F on the Celsius and Kelvin scales?
- What is 184.9 K on the Celsius and Fahrenheit scales?

Q-

What is the final temperature of 1/5 kg of frozen water (ice @ -2 °C) that is enclosed in a 340 liter container when supplied with:

- A- 12000 cal
- B- 19600 cal
- C- 100000 cal

D- 150000 cal

You are told that:

$c_{ice} = 0.5 \text{ cal/ (g K)}$; $c_p = 35.4 \text{ J/(mol K)}$; $c_v = 27 \text{ J/(mol K)}$;

$L_v = 2256 \text{ kJ/kg}$; $L_f = 333 \text{ kJ/kg}$

Q- from a major exam

A steel rod is 3.000 cm in diameter at 25 °C. A brass ring has an inner diameter of 2.992 cm at 25 °C. At what common temperature will the ring just slide onto the rod? (assume $\alpha_{steel} = 1 \times 10^{-5} \text{ }^\circ\text{C}^{-1}$ and $\alpha_{brass} = 2 \times 10^{-5} \text{ }^\circ\text{C}^{-1}$)

Ans. 293 °C