

Skill Practice 35

Gas Laws Practice

Name: _____

Date: _____

Hour: _____

IMPORTANT: whenever you use temperature, it must be in degree Kelvin (K), so remember the equation: $K = ^\circ C + 273$

- a) convert $39^\circ C$ to K. b) convert 127 K to $^\circ C$.
312 K **-146 $^\circ C$**
- A gas has an initial volume of 2.75 L at a temperature of 285 K. If the temperature changes to 380 K, what is the new volume of the gas if the pressure is unchanged?
3.67 L
- Gas can often be cooled by compressing it while keeping the pressure constant. If I have 45.0 L of gas at room temperature ($22^\circ C$) and I compress it so that the final volume is 0.50 L, what is the final temperature of the gas if the pressure is constant?
3.28 K or -269.7 $^\circ C$
- The volume of a gas is 2.5 L when the pressure is at standard pressure (101.325 kPa). What is the volume of the gas if the pressure decreases to 85 kPa and the temperature remains unchanged?
2.98 L
- A 5.0 L container of gas experiences a temperature change so that the final temperature is 4 times the initial temperature. What is the size of the container after the temperature change? (Assume constant pressure.)
20 L
- At $45^\circ C$ the volume of a certain gas is 27.5 L and the pressure is 210 kPa. What is the volume of the gas at standard temperature (273 K) and 310 kPa of pressure?
16.0 L
- The pressure of a sample of gas was 97.8 kPa and the volume of the gas was 3.75 L. If the gas occupied a container with a volume of 8.00 L, what would the pressure in the container be?
45.8 kPa
- Isothermal expansion refers to allowing a gas to expand while keeping the temperature constant. This is one means to simulate a vacuum. If a gas originally at 97 kPa is allowed to expand from 0.25 L to 182 L, what is the pressure of the gas?
0.133 kPa
- A gas is initially at a pressure of 225 kPa and a temperature of 245 K in a container that is 4.5 L. If the gas is compressed to a volume of 2.1 L and the temperature changes to 275 K, what is the new pressure?
541.2 kPa