1.8.5.1: Practice Combined Gas Law

This also has practice with Boyle's Law, Charles' Law, and Gay-Lussac's Law, which can be derived from the combined gas law:

Combined Gas Law	At conditions of	Becomes	Also Known As
$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$	Constant Temperature ($T_1 = T_2$)	$P_1V_1 = P_2V_2$	Boyle's Law
$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$	Constant Pressure ($P_1 = P_2$)	$\frac{V_1}{T_1} = \frac{V_2}{T_2}$	Charles' Law
$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$	Constant Volume ($V_1 = V_2$)	$\frac{P_1}{T_1} = \frac{P_2}{T_2}$	Gay-Lussac's Law

Exercise 1.8.5.1.1

You have a sample of gas with a pressure of 1.86 atm, volume of 4.33 L, and temperature of 26.5 °C. If you cool it to 12.7 °C and decrease the volume to 3.45 L, what will the pressure be?.

Answer

2.23 atm.

Exercise 1.8.5.1.1

You have a flexible container of gas with a volume of 5.220 L at 19.4 °C. At what temperature would the volume increase to be 6.000 L?

Answer

336.3 K or 63.1 °C.