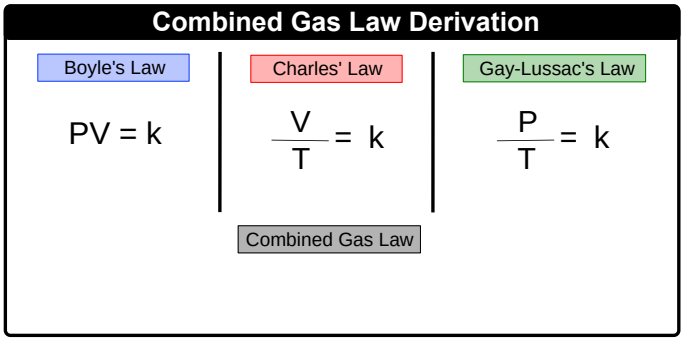
CONCEPT: CHEMISTRY GAS LAWS: COMBINED GAS LAW

- **The Combined Gas Law**: created from "combining" *Boyle's Law*, *Charles' Law*, and *Gay–Lussac's Law*.
  - □ Highlights the relationships between the variables of pressure, volume and temperature.
  - □ Boyle's Law: Pressure is _____ proportional to volume.
  - □ Charles' Law: Volume is _____ proportional to temperature.
  - □ Gay-Lussac's Law: Pressure is _____ proportional to temperature.



EXAMPLE: A sample of gas initially has a volume of 900 mL at 520 K and 1.85 atm. What is the pressure of the gas if the volume decreases to 330 mL while the temperature increases to 770 K?

PRACTICE: A 4.30 L gas has a pressure of 7.0 atm when the temperature is 60.0 ºC. What will be the temperature of the gas mixture if the volume and pressure are decreased to 2.45 L and 403.0 kPa respectively?

PRACTICE: A sealed container with a movable piston contains a gas with a pressure of 1380 torr, a volume of 820 mL and a temperature of 31^{o}C. What would the volume be if the new pressure is now 2.83 atm, while the temperature decreased to 25^{o}C?