Pressure Conversions and Gas Laws worksheet

1. Convert .98 atm to mm of Hg   2. Convert 1.2 atm to kPa

2. Convert 778 torr to atm   3. Convert 32 psi to atm and kPa

Boyle's Law

3. The pressure in a 4.00 L tire is increased from 230 mm Hg to 400 mm Hg. What is the new volume?

4. A balloon at 1.50 atm holds 600. mL of air. What volume would it hold if the weather changes and the pressure changes to 755 mm Hg?

Charles' Law

5. The volume of a tire on a race car is 6000. cm^3 at a temperature of 25°C. As the race proceeds, the day gets warmer and the temperature rises to 30.ºC. Pressure does not change. What will be the volume of the tire later in the day?

6. The same tire above (6000. cm^3) inflates to 8500 cm^3 at a temperature of 35°C. What was the original temperature of the tire? Pressure is still the same.

Gay-Lussac's Law

7. Pressure inside a jelly jar before it is sealed is equal to the room pressure of 1.75 atm at 25°C. After the jar is placed in hot water at 100.ºC a vacuum forms. What is the new pressure inside the jar?

8. Calculate the temperature of a jar with a pressure of 780 mm Hg if the pressure was 408 mm Hg at 285K.

Combined Gas Law

9. A weather balloon starts out on the ground at a temperature of 310 K and holds 6.5 L of air with a pressure of 4 atm. As the weather balloon rises into the atmosphere, the temperature drops to 260 K and the pressure drops to 1.0 atm. What volume of air does the balloon hold?