Chemistry **Name** _____

Gas Laws WS #1 **Date** _____

Gay-Lussac's Law: Temperature & Pressure **Block** _____

1. The relationship between temperature and pressure is:

2. The formula for converting °C to K is:

3. A gas with a pressure of 5.4 atm and at 25°C is raised to a new temperature of 78°C. What is the new pressure?

4. A gas with a pressure of 550 torr and at 110°C is raised to a new pressure of 760 torr. What is the new temperature?

5. A gas with a pressure of 780 mmHg and at 55°C is lowered to a new pressure of 640 mmHg. What is the new temperature?

6. A gas with a pressure of 5.6 atm and at –150°C is lowered to a new temperature of 20°C. What is the new pressure?

Gas Laws WS #2

Boyle's Law: Pressure and Volume

1. What is the relationship between pressure and volume?

2. A gas at 5.4 atm has a volume of 1.3 L. What volume would the gas have at 6.8 atm?

3. A gas at 355 torr has a volume of 850 mL. What pressure would you need to decrease the volume to 550 mL?

A gas at 67 L is reduced to 44L. If the original pressure was 330 torr, what is the new pressure?

5. A quick review: Temperature must be in KELVIN!

$$T_K - 273 = T_C$$
$$T_C + 273 = T_K$$

56°C		
		350 K
-45°C		
		4 K

Gas Laws WS #3

Charles Law: Temperature & Volume

1. The relationship between temperature and volume is:

2. A gas at 5°C occupies a volume of 7.5 liters. What volume will the gas occupy at 100°C?

3. A gas at –20°C occupies a volume of 35.0 liters. What volume will the gas occupy at 20°C?

4. A gas fills a balloon and occupies a volume of 22.4 L at a temperature of 27°C. What would the new volume of the balloon be if the gas were heated to 127°C?

5. A gas occupies a volume of 30.0 cm^3 at 73.5°C. If the pressure is held constant and the temperature is changed to 22.5°C, what will the new volume be?

6. A sample of argon gas is cooled and its volume went from 3.8 L to 2.3 L. If its final temperature was 45°C, what as the original temperature?

Chemistry
Gas Laws WS #4:
Combined Gas Law

Name _____
Date _____
Block _____

Combined Gas Law

1. 4.5 L of Carbon dioxide at 23°C has a pressure of 3.2 atm. What is the pressure of the carbon dioxide at 95°C and 3.4 L?

2. 7.6 L of nitrogen at 146°C has a pressure of 755 torr. What is the pressure of the nitrogen at 57°C and 10.5 L?

3. Oxygen at 25°C and 760 torr pressure occupies a volume of 21.2 L. What is the volume of oxygen gas at 133°C and 830 torr?

4. 4.3 L of methane at 5.4 kPa has a temperature of 46°C. What is the temperature of methane at 5.4 L at 6.6 kPa?

Chemistry
Gas Laws WS #5:
Ideal Gas Law

Name _____
Date _____
Block _____

Ideal Gas Law

1. What pressure (in atm) is exerted by 0.622 moles of gas contained in a 9.22 L vessel at 16.0°C?

P=
V=
n=
R=
T=

2. How many moles of gas occupy a 4.86 L flask at 11°C and 66.7 kPa pressure?

P=
V=
n=
R=
T=

3. What volume is occupied by .684 mol of gas at 800 mmHg and 9.0°C?

P=
V=
n=
R=
T=

4. At what temperature is a gas if 8.51 mol of it is contained in a .604-L vessel at 25 atm?

P=
V=
n=
R=
T=

5. What pressure (in kPa) is exerted by 0.00306 mol of gas in a 25.9-cm^3 container at –25°C?

P=
V=
n=
R=
T=