Gas Laws
Chemistry

Name _____

Answer each question using the proper gas law. Identify all constants before working problems. Use consistent units for pressure, and **ALWAYS use Kelvins for temperature.**

1. The gas left in a used aerosol can is at a pressure of 1 atm at 27°C. If this can is thrown into a fire, what is the internal pressure of the gas when its temperature reaches 927°C?

GIVEN	GAS LAW	WORK
		ANSWER: $P = 4 \, atm$
	FORMULA	
	$\dfrac{P_1}{T_1} = \dfrac{P_2}{T_2}$	

2. A sample of carbon dioxide occupies a volume of 3.50 L at 125 kPa. What pressure would the gas exert if the volume were decreased to 2.00 L?

GIVEN	GAS LAW	WORK
		ANSWER: $P = 219 \, kPa$
	FORMULA	
	$P_1V_1 = P_2V_2$	

3. Fluorine exerts a pressure of 900. torr. When the pressure is changed to 1.5 atm, its volume is 250. mL. What was the original volume?

GIVEN	GAS LAW	WORK
		ANSWER:
	FORMULA	$V_1 = 318 \, mL$
	$P_1V_1 = P_2V_2$	

4. A sample of N_2 occupies a volume of 250 mL at 25°C. What volume will it occupy at 95°C?

GIVEN	GAS LAW	WORK
		ANSWER: $V_2 = 310 \, mL$
	FORMULA	
	$\dfrac{V_1}{T_1} = \dfrac{V_2}{T_2}$	

5. Oxygen gas is at a temperature of 40°C when it occupies a volume of 2.3 L. To what temperature **in Celsius** should it be raised to occupy a volume of 6.5 L?

GIVEN	GAS LAW	WORK
		ANSWER: $T_2 = 885K = 612°C$
	FORMULA $\dfrac{V_1}{T_1} = \dfrac{V_2}{T_2}$	

6. A sample of propane occupies 250.0 L at 125 kPa and 38°C. Find its volume at 100.0 kPa and 95°C.

GIVEN	GAS LAW	WORK
		ANSWER: $V_2 = 370L$
	FORMULA $\dfrac{P_1 V_1}{n_1 T_1} = \dfrac{P_2 V_2}{n_2 T_2}$	

7. The volume of a gas is 200.0 mL at 275 K and 92.1 kPa. Find its volume at STP.

GIVEN	GAS LAW	WORK
		ANSWER: $V_2 = 181 mL$
	FORMULA $\dfrac{P_1 V_1}{n_1 T_1} = \dfrac{P_2 V_2}{n_2 T_2}$	