

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

## WS 10.2 - Combined Gas Law

$$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$$

1. Calculate the unknown quantity in each of the following measurements of gases.

	<b>P<sub>1</sub></b>	<b>V<sub>1</sub></b>	<b>T<sub>1</sub></b>	<b>P<sub>2</sub></b>	<b>V<sub>2</sub></b>	<b>T<sub>2</sub></b>
A	1.03 atm	1.65 L	19°C	.920 atm		46°C
B	107.0 kPa	3.79 cm <sup>3</sup>	73°C		7.58 L	217°C
C	.029 atm	249 mL		.098 atm	197 mL	293 K
D	113,000 Pa		12°C	1.47 atm	31.8 cm <sup>3</sup>	-18°C
E	560 mm Hg	93 cm <sup>3</sup>	-22°C	767 mm Hg	.85 L	
F		.156 L	195 K	2.25 atm	468 cm <sup>3</sup>	584 K

2. The pressure in a car tire is 2.50 atm at a temperature of 33°C. What would the pressure be if the tire were allowed to cool to 0°C? Assume that the tire does not change volume.

3. A weather balloon is inflated with 2.94 kL of helium at a location where the pressure is 1.06 atm and the temperature is 32°C. What is the volume of the balloon at an altitude where the pressure is 0.092 atm and the temperature is -35°C?