

Combined Gas Law Worksheet

$$\textcircled{1} \quad 36^\circ\text{C} + 273 = 309\text{K}$$

$$28^\circ\text{C} + 273 = 301\text{K}$$

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

$$\frac{(0.998 \text{ atm})(2.1 \text{ L})}{309\text{K}} = \frac{(0.900 \text{ atm}) V_2}{301\text{K}}$$

$$\underline{V = 2.27 \text{ L}}$$

$$\textcircled{2} \quad 0^\circ\text{C} + 273 = 273\text{K}$$

$$30^\circ\text{C} + 273 = 303\text{K}$$

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

$$\frac{(1 \text{ atm})(30 \text{ mL})}{273\text{K}} = \frac{P_2(20 \text{ mL})}{303\text{K}}$$

$$\underline{P = 1.66 \text{ atm}}$$

$$\textcircled{3} \quad 22^\circ\text{C} + 273 = 295\text{K}$$

$$100^\circ\text{C} + 273 = 373\text{K}$$

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

$$\frac{(1.02 \text{ atm}) V_1}{295\text{K}} = \frac{(1.23 \text{ atm})(0.224 \text{ mL})}{373\text{K}}$$

$$\underline{V = 0.214 \text{ mL}}$$

$$\textcircled{4} \quad 5^{\circ}\text{C} + 273 = 278\text{K}$$

$$2.09^{\circ}\text{C} + 273 = 275.09\text{K}$$

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

$$\frac{(1.30 \text{ atm})(46 \text{ mL})}{(278 \text{ K})} = \frac{(1.52 \text{ atm})V_2}{(275.09 \text{ K})}$$

$$\underline{V = 38.9 \text{ mL}}$$

$$\textcircled{5} \quad \frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

$$\frac{P(0.766 \text{ L})}{(298 \text{ K})} = \frac{(32.6 \text{ kPa})(0.644 \text{ L})}{(303 \text{ K})}$$

$$\underline{P = 26.96 \text{ kPa}}$$