

Mixed Gas Law Calc KEY

1) Boyle's $(740.0 \text{ mmHg})(2.00 \text{ L}) = (760 \text{ mmHg})(x \text{ L})$
 $\boxed{1.95 \text{ L} = x} \quad (V_2)$

2) Charles $\frac{2.85 \text{ L}}{298 \text{ K}} = \frac{V_2}{293 \text{ K}} \quad \boxed{V_2 = 2.61 \text{ L}}$

3) Comb $\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2} \quad \frac{(75.6 \text{ kPa})(10.0 \text{ mL})}{333.2 \text{ K}} = \frac{(101.3 \text{ kPa})(V_2)}{273 \text{ K}}$
 $\boxed{V_2 = 6.11 \text{ mL}}$

4) Boyle's $(56.1 \text{ mL})(P_1) = (57.9 \text{ mL})(99.4 \text{ kPa})$
 $\boxed{P_1 = 103 \text{ kPa}}$

5) Gay-Lussac $\frac{P_1}{T_1} = \frac{P_2}{T_2} \quad \frac{30.0 \text{ atm}}{298.2 \text{ K}} = \frac{P_2}{283.2 \text{ K}} \quad \boxed{P_2 = 28.5 \text{ kPa}}$

6) Gay-Lussac $\frac{151.6 \text{ kPa}}{298.2 \text{ K}} = \frac{P_2}{573 \text{ K}} \quad \boxed{P_2 = 291 \text{ kPa}}$

7) Comb $\frac{(65.3 \text{ kPa})(654 \text{ mL})}{279.2 \text{ K}} = \frac{(108.7 \text{ kPa})(V_2)}{277.2 \text{ K}} \quad \boxed{V_2 = 390. \text{ mL}}$

8) Gay-Lussac $\frac{388 \text{ kPa}}{297.2} = \frac{825 \text{ kPa}}{T_2} \quad \boxed{T_2 = 632 \text{ K}}$

9) Comb $\frac{(99.7 \text{ kPa})(3.04 \times 10^3 \text{ m}^3)}{285.2 \text{ K}} = \frac{(P_2)(3.25 \times 10^3 \text{ m}^3)}{298.2 \text{ K}} \quad \boxed{P_2 = 97.5 \text{ kPa}}$

10) Comb $\frac{(101.3 \text{ kPa})(325 \text{ mL})}{273.2} = \frac{(93.3 \text{ kPa})V_2}{293.2} \quad \boxed{V_2 = 379 \text{ mL}}$

11) Boyles $(1.0 \text{ atm})(458 \text{ mL}) = P_2(477 \text{ mL})$

$$P_2 = 0.970 \text{ atm}$$

12) Charles $\frac{10.6 \text{ mL}}{295.6 \text{ K}} = \frac{V_2}{300.1 \text{ K}}$ $V_2 = 10.8 \text{ mL}$

13) Comb $\frac{(1.50 \text{ atm})(1400 \text{ m}^3)}{356 \text{ K}} = \frac{(3.0 \text{ atm})(1200 \text{ m}^3)}{T_2}$ $T_2 = 610 \text{ K}$

14) Comb $\frac{(120 \text{ kPa})(3.40 \text{ L})}{298 \text{ K}} = \frac{(101.3 \text{ kPa})(V_2)}{273 \text{ K}}$ $V_2 = 3.69 \text{ L}$