

7.

a. $V_1 = 53.2 \text{ mL}$ $P_1 = 785 \text{ mmHg}$
 $V_2 = ?$ $P_2 = 700 \text{ mmHg}$

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

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

$$\boxed{V_2 = 59.7 \text{ mL}}$$

$$\frac{785 \text{ mmHg}}{700 \text{ mmHg}} \times \frac{53.2 \text{ mL}}{1} = 59.7 \text{ mL}$$

b. $V_1 = 2.25 \text{ L}$ $P_1 = 1.67 \text{ atm}$
 $V_2 = 2.00 \text{ L}$ $P_2 = ?$

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

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

$$\boxed{P_2 = 1.88 \text{ atm}}$$

$$\frac{1.67 \text{ atm}}{2.00 \text{ L}} \times \frac{2.25 \text{ L}}{1} = 1.88 \text{ atm}$$

c. $V_1 = 5.62 \text{ L}$ $P_1 = 695 \text{ mmHg}$ $\leftarrow$ Not same units!
 $V_2 = ?$ $P_2 = 1.51 \text{ atm}$ $\leftarrow$ units!

$$\boxed{3.40 \text{ L}} = V_2 = \frac{P_1 V_1}{P_2}$$

$$\frac{695 \text{ mmHg}}{1.51 \text{ atm}} \times \frac{5.62 \text{ L}}{1} \times \frac{1 \text{ atm}}{760 \text{ mmHg}} = 3.40 \text{ L}$$

8. a) 146 mL b) .354 L

c) 687 mmHg

10. $V_1 = 1.00 \text{ L}$ $P_1 = 760 \text{ mmHg}$

$V_2 = 50.0 \text{ mL}$ $P_2 = ?$

$1 \text{ L} = 1000 \text{ mL}$

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

760 mmHg	1.00 L		1000 mL	1 atm
		50.0 mL	1 L	760 mmHg

20.0 atm