

COMBINED GAS LAW

Name _____

In practical terms, it is often difficult to hold any of the variables constant. When there is a change in pressure, volume and temperature, the combined gas law is used.

$$\frac{P_1 \times V_1}{T_1} = \frac{P_2 \times V_2}{T_2} \quad \text{or} \quad P_1 V_1 T_2 = P_2 V_2 T_1$$

Complete the following chart.

| | P_1 | V_1 | T_1 | P_2 | V_2 | T_2 |
|---|-----------|--------|--------|-----------|--------|-----------------|
| 1 | 1.5 atm | 3.0 L | 20° C | 2.5 atm | | 30° C |
| 2 | 720 torr | 256 mL | 25° C | | 250 mL | 50° C |
| 3 | 600 mmHg | 2.5 L | 22° C | 760 mmHg | 1.8 L | |
| 4 | | 750 mL | 0.0° C | 2.0 atm | 500 mL | 25° C |
| 5 | 95 kPa | 4.0 L | | 101 kPa | 6.0 L | 471 K or 198° C |
| 6 | 650. torr | | 100° C | 900. torr | 225 mL | 150° C |
| 7 | 850 mmHg | 1.5 L | 15° C | | 2.5 L | 30° C |
| 8 | 125 kPa | 125 mL | | 100 kPa | 100 mL | 75° C |