Conversions

1 atm =	1.01325 x 10^5 Pa
	101.325 kPa
	760 mmHg
	760 torr
	14.7 psi

Boyle's Law

$$P_1 V_1 = P_2 V_2$$

- Temperature and # moles held constant
- Indirect (or inverse) relationship
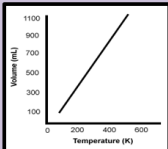 *If pressure goes ↑*
  Then volume goes ↓
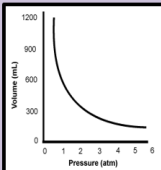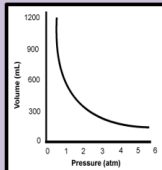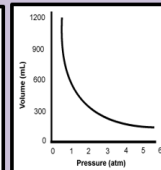
Charles' Law

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

- Pressure and # moles held constant
- Direct relationship
  If temperature goes ↑
  Then volume goes ↑
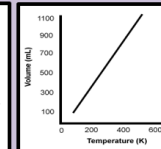
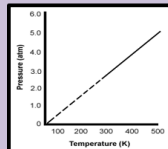*note* Graph doesn't go all the way to zero because the molecules will eventually get as close as possible and they will still always take up space

Gay-Lussac's Law

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

- Volume and # moles held constant
- Direct relationship
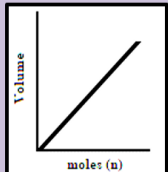 *If temperature goes ↑*
  Then pressure goes ↑
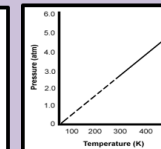
note Graph doesn't go all the way to zero because at low temperatures and pressures it won't be a gas anymore, it will turn into a solid or a liquid. We use a dotted line to show the portions that are not gas phase

Avogadro's Law

$$\frac{V_1}{n_1} = \frac{V_2}{n_2}$$

- Pressure and temperature held constant
- Direct relationship
  If # of moles goes ↑
  Then volume goes ↑

Combined Gas

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

- # of moles held constant
- Combines most common variables together – not common to change moles of gas
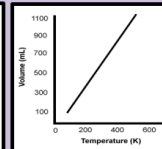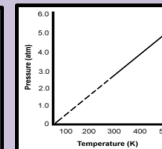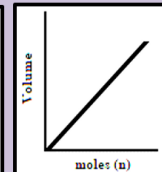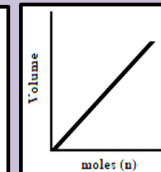
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