

Bauck's CHEM Ch. 12 Test Review

This is an optional assignment due the day of the test.

Materials: loose leaf paper, pen and/or pencil (You will be given a periodic table.)

Format: math problems:

gas dimensional analysis (practice 3), Boyle's Law (practice 2), Charles' Law (practice 2), Gay-Lussac's Law (practice 2), Combined Gas Law (practice 2), Ideal Gas Law (practice 2), and Partial Pressure (notes)

Test date: _____

Test value: 200 points

TOPICS TO STUDY:

- 1) α = What is this symbol? What does it mean? How does it relate to gas laws?
- 2) Other symbols – What do these mean: **P, V, T, R, n**
- 3) **Dalton's Law of Partial Pressures** – Summarize the law.
- 4) **STP**—What does this mean?
- 5) **Pressure**—What is it? What are common pressure units? How does change in pressure affect volume and temp?
- 6) **Temperature**—What is it? What temp unit must be used for gas laws problems? How does change in temp affect volume and pressure?
- 7) **Volume**— What is it? What are common volume units? How does change in volume affect pressure and temp?
- 8) **Math problems:**

For this review, give an example of each type of problem. Show all work and units.

- a) Charles' law
- b) Boyle's law
- c) Gay-Lussac's law
- d) Combined gas law
- e) Ideal gas law
- f) Dalton's law of partial pressures
- g) Non-stoich 2-step DA involving gases at STP
- h) Stoichiometry: 3-step DA involving gases at STP

** You must know what the numbers are for standard temp. (0 °C, 273.15 K) **

** Note - There will be at least one question pertaining to material in past chapter(s) or unit(s).

These EQUATIONS AND CONSTANTS will be given on the test:

$$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$$

$$PV = nRT$$

$$P_{\text{TOTAL}} = P_1 + P_2 + P_3 \dots$$

$$K = C + 273.15$$

Values for R:

0.08206 (L atm / mol K)

8.314 (L kPa /mol K)

62.36 (L mm Hg / mol K) or (L torr/ mol K)

STANDARD ATMOSPHERIC PRESSURE:

1 atm* 760* mm Hg 760* torr 101.3 kPa 14.7 psi

* standard values for atm, mm Hg, torr are exact