Tuesday, March 17th

Objective: Students will demonstrate their knowledge of quarter 3.

1. Q3 Review
2. Work on 3rd Quarter Cumulative Review
3. Review with Quizziz and Quizlets posted on classwebsite under "labs and homework Q3 tab"

Due: tomorrow Q3 Cumulative Review
Homework: Study for Q3 Cumulative Test

Q3 Test Tomorrow- NO CORRECTIONS!

Materials: writing utensil, notebook, handouts

Apr 8-10:09 AM

Quarter 3 Cumulative Review

Question 1

- According to the Kinetic Molecular Theory, gas particles ____

a. Exert strong attractive and repulsive forces on each other

b. Have inelastic collisions

c. All move in the same direction

d. Have the same average kinetic energy if at the same temperature

Mar 28-7:01 AM

Quarter 3 Cumulative Review

Question 1 Answer

- According to the Kinetic Molecular Theory, gas particles ____

a. Exert strong attractive and repulsive forces on each other

b. Have inelastic collisions

c. All move in the same direction

d. Have the same average kinetic energy if at the same temperature

Mar 28-7:01 AM

Quarter 3 Cumulative Review

Question 2

- How many moles of carbon dioxide would you have in a 5.00 L container at 35.0°C and 1.22 atm?

a. 0.241 mol

b. 4.15 mol

c. 6.75 mol

d. 10.6 mol

Mar 28-7:01 AM

Quarter 3 Cumulative Review

Question 2 Answer

- How many moles of carbon dioxide would you have in a 5.00 L container at 35.0°C and 1.22 atm?

a. 0.241 mol

b. 4.15 mol

c. 6.75 mol

d. 10.6 mol

$PV = nRT$

$\frac{1.22\text{atm} \times 5.00\text{L}}{(.0821 \times 308\text{K})} = \frac{n \times .0821 \times 308\text{K}}{.0821 \times 308\text{K}}$

$n = 0.241\text{mol}$

Quarter 3 Cumulative Review

Question 3

- How much heat is required when 85.0 g of lead is heated from 10.0°C to 200.0°C? (specific heat of lead = 0.129 J/g °C)

a. 17.3 J

b. 2.08×10^3 J

c. 2.30×10^3 J

d. 1.25×10^5 J

Mar 28-7:01 AM

Quarter 3 Cumulative Review

Question 3 Answer

- How much heat is required when 85.0 g of lead is heated from 10.0°C to 200.0°C? (specific heat of lead = 0.129 J/g °C)

a. 17.3 J

b. 2.08×10^3 J

c. 2.30×10^3 J

d. 1.25×10^5 J

$q = mc\Delta T$

$q = 85.0g \times .129 \times 190°C$

$q = 2.08 \times 10^3$ J

Quarter 3 Cumulative Review

Question 4

- Using standard heats of formation given in the table, calculate ΔH for the following reaction:
  $4HCl(g) + O_2(g) \longrightarrow 2Cl_2(g) + 2H_2O(g)$

a. -334.1 kJ

b. -149.5 kJ

c. -114.4 kJ

d. 114.4 kJ

Compound	ΔH_f° (kJ/mol)
HCl(g)	-92.3
$H_2O(g)$	-241.8

Mar 28-7:01 AM

Quarter 3 Cumulative Review

Question 4 Answer

- Using standard heats of formation given in the table, calculate ΔH for the following reaction:

$4HCl(g) + O_2(g) \longrightarrow 2Cl_2(g) + 2H_2O(g)$

a. -334.1 kJ

b. -149.5 kJ

c. -114.4 kJ

d. 114.4 kJ

Compound	ΔH_f° (kJ/mol)
HCl(g)	-92.3
$H_2O(g)$	-241.8

$\Delta H_{rxn} = \sum \Delta H_f \text{ products} - \sum \Delta H_f \text{ reactants}$

$\Delta H_{rxn} = (2(0) + 2(-241.8)) - (4(-92.3) + 0))$

$= -114.4 \text{ kJ}$

Quarter 3 Cumulative Review

Question 5

- A *decrease* in entropy is seen when
  a. NaCl (s) is dissolved in water
  b. $CaCO_3$ (s) forms CaO (s) and CO_2 (g)
  c. Hydrogen gas and oxygen gas form liquid water
  d. Water evaporates

Mar 28-7:01 AM

Quarter 3 Cumulative Review

Question 5 Answer

less disorder −ΔS

- A *decrease* in entropy is seen when
  a. NaCl (s) is dissolved in water
  b. $CaCO_3$ (s) forms CaO (s) and CO_2 (g)
  c. Hydrogen gas and oxygen gas form liquid water
  d. Water evaporates

s → aq +ΔS

s → s + g +ΔS

g + g → l −ΔS

l → g +ΔS

Quarter 3 Cumulative Review

Question 6

- What is the molarity of a solution made with 2.50 g of sodium chloride dissolved in 125 mL of solution?

a. 20.0 M

b. 0.342 M

c. 0.0200 M

d. 3.42×10^{-4} M

Mar 28-7:01 AM

Quarter 3 Cumulative Review

Question 6 Answer

- What is the molarity of a solution made with 2.50 g of sodium chloride dissolved in 125 mL of solution?

a. 20.0 M

b. 0.342 M

c. 0.0200 M

d. 3.42×10^{-4} M

$1M = \frac{mol}{L}$

$2.50 g NaCl \mid 1 mol NaCl = .0428 mol$
$58.44277 g NaCl \quad .125 L$

$= 0.342 M$

Mar 28-7:01 AM

Quarter 3 Cumulative Review

Question 7

- How many milliliters of 12.0 M HCl are needed to make 500. mL of 2.50 M HCl?

a. 2400 mL

b. 104 mL

c. 16.7 mL

d. 0.0600 mL

Mar 28-7:01 AM

Quarter 3 Cumulative Review

Question 7 Answer

- How many milliliters of 12.0 M HCl are needed to make 500. mL of 2.50 M HCl?

a. 2400 mL

b. 104 mL

c. 16.7 mL

d. 0.0600 mL

$M_1V_1 = M_2V_2$

$12.0M \times V_1 = 2.5M \times 500mL$

$V_1 = 104mL$

Mar 28-7:01 AM

Quarter 3 Cumulative Review

Question 8

- What would be the percent by mass of 35.0 g of CCl_4 dissolved in 500. g of benzene, C_6H_6?
  a. 6.54 %
  b. 7.00 %
  c. 14.3 %
  d. 15.3 %

Mar 28-7:01 AM

Quarter 3 Cumulative Review

Question 8 Answer

- What would be the percent by mass of 35.0 g of CCl_4 dissolved in 500. g of benzene, C_6H_6?

a. 6.54 %

b. 7.00 %

c. 14.3 %

d. 15.3 %

$$\%\ \text{mass} = \frac{\text{g solute}}{\text{g solution}} \times 100$$

g solution = solute + solvent

$$\frac{35.0\ \text{g}}{(35.0 + 500\ \text{g})} \times 100 = 6.54\%$$

Mar 28-7:01 AM