

Homework 7. Chapter 7

- Which of the following is a combination reaction?
 - $\text{Cu}^{2+}(\text{aq}) + \text{Fe}(\text{s}) \rightarrow \text{Fe}^{2+}(\text{aq}) + \text{Cu}(\text{s})$
 - $\text{MgO}(\text{s}) + \text{CO}_2(\text{g}) \rightarrow \text{MgCO}_3(\text{s})$
 - $\text{Pb}(\text{NO}_3)_2(\text{aq}) + \text{CaCl}_2(\text{aq}) \rightarrow \text{PbCl}_2(\text{s}) + \text{Ca}(\text{NO}_3)_2(\text{aq})$
 - $\text{HNO}_3(\text{aq}) + \text{KOH}(\text{aq}) \rightarrow \text{KNO}_3(\text{aq}) + \text{H}_2\text{O}(\text{l})$
- Which of the following is reduction-oxidation (Redox) reaction?
 - $\text{Zn}(\text{s}) + \text{CuSO}_4(\text{aq}) \rightarrow \text{ZnSO}_4(\text{aq}) + \text{Cu}(\text{s})$
 - $\text{BaCl}_2(\text{aq}) + \text{K}_2\text{SO}_4(\text{aq}) \rightarrow \text{BaSO}_4(\text{s}) + 2\text{KCl}(\text{aq})$
 - $\text{HNO}_3(\text{aq}) + \text{KOH}(\text{aq}) \rightarrow \text{KNO}_3(\text{aq}) + \text{H}_2\text{O}(\text{l})$
 - $\text{CaSO}_3(\text{s}) + 2\text{HCl}(\text{aq}) \rightarrow \text{CaCl}_2(\text{aq}) + \text{H}_2\text{O}(\text{l}) + \text{SO}_2(\text{g})$
- Which of the following is a combustion reaction?
 - $\text{Zn}(\text{s}) + \text{CuSO}_4(\text{aq}) \rightarrow \text{ZnSO}_4(\text{aq}) + \text{Cu}(\text{s})$
 - $\text{BaCl}_2(\text{aq}) + \text{K}_2\text{SO}_4(\text{aq}) \rightarrow \text{BaSO}_4(\text{s}) + 2\text{KCl}(\text{aq})$
 - $\text{HNO}_3(\text{aq}) + \text{KOH}(\text{aq}) \rightarrow \text{KNO}_3(\text{aq}) + \text{H}_2\text{O}(\text{l})$
 - $\text{C}_6\text{H}_{12}\text{O}_6(\text{s}) + 6\text{O}_2(\text{g}) \rightarrow 6\text{CO}_2(\text{g}) + 6\text{H}_2\text{O}(\text{l})$
 - $\text{CaSO}_3(\text{s}) + 2\text{HCl}(\text{aq}) \rightarrow \text{CaCl}_2(\text{aq}) + \text{H}_2\text{O}(\text{l}) + \text{SO}_2(\text{g})$
- Solution with a solid material that separates from a solution when its solubility is exceeded is called:
 - supersaturated
 - saturated
 - unsaturated
 - a precipitate
- Which one of the following processes cannot separate solute from solvent in a true solution?
 - chromatography
 - filtration
 - boiling
 - adsorption
 - evaporation
- The number of moles of a gas dissolved in a liquid at a given temperature is proportional to the partial pressure of the gas. What is this law called?
 - Dalton's Law
 - Henry's Law
 - The Tyndall Law
 - Raoult's Law
 - Boyle's Law
- Calculate the concentration (% W/V) of NaCl solution that was made by dissolving 15.0 g of sodium chloride in enough water to make 300.0 mL of solution.
 - 50.0% (W/V)
 - 0.0500% (W/V)
 - 0.356% (W/V)
 - 35.6% (W/V)
 - 5.00% (W/V)
- How many milliliters of 0.1250 M KCl solution contain 2.330 g of KCl? [Use formula weight: KCl, 74.55 g/mol]
 - 20.50 mL
 - 26.95 mL
 - 25.00 mL
 - 1.500 mL
 - 250.0 mL
- What concentration term is defined as the number of moles of solute per kilogram of solvent in a solution?
 - normality
 - osmolarity
 - % (W/V)
 - molarity
 - molality
- Calculate the molarity of 2.00 L of solution that contains 200.0 g of NaOH. [Use formula weight: NaOH, 40.0 g/mol]
 - 40.0 M
 - 4.00 M
 - 0.250 M
 - 2.50 M
 - 25.0 M
- If the concentration of Mg^{2+} in solution is $3.0 \times 10^{-3} M$, what is its concentration expressed in meq/L?
 - 6.0 meq/L
 - 3.0 meq/L
 - 1.5 meq/L
 - 6.0×10^{-6} meq/L
 - 1.5×10^{-6} meq/L
- Calculate the molarity of a solution if 300.0 mL of it contains 16.8 g of KNO_3 . [Use formula weight: KNO_3 , 101.11 g/mol]
 - 1.50 M
 - 1.21 M
 - 0.554 M
 - 0.554 m
- What is the molarity of 50.0 mL of a 0.660 M NaOH solution after it has been diluted to 450.0 mL?
 - 1.5 M
 - 1.55 M
 - 0.0733 M
 - 0.660 m
- Calculate the osmolarity of a $2.0 \times 10^{-3} M$ Na_3PO_4 solution. Na_3PO_4 is an ionic compound and produces an electrolytic solution.
 - 2.0×10^{-3}
 - 4.0×10^{-3}
 - 6.0×10^{-3}
 - 8.0×10^{-3}
- Calculate the osmotic pressure of a $6.0 \times 10^{-2} M$ solution of NaCl at 20°C (293K).
 - 3.8 atm
 - 5.8 atm
 - 2.9 atm
 - 8.7 atm