

Chem 103

Practice problems from Week #2

Do these NOW.

Final answers will not be made available – especially to those who don't try to do the problems (and therefore do not have to know the answers).

1) Lead chloride, PbCl_2 , has a K_{sp} of 1.7×10^{-5} . What is the osmotic pressure of an aqueous solution containing a saturated solution of this PbCl_2 at 20°C ?

2) What is the hydronium ion concentration of a 0.10 M solution of hydrofluoric acid (HF , $K_a = 7.2 \times 10^{-4}$)? What is the pH?

3) complete the following:

if $[\text{OH}^-] = 2.86 \times 10^{-5}$, what are: pH = _____ pOH = _____

$[\text{H}^+] =$ _____

4) Suppose 4.80 grams of a nonelectrolyte compound is dissolved in water and exerts an osmotic pressure of 2.58 atm at 15°C . What is the molecular weight of this compound?

5) What is the K_a of a monoprotic weak acid, HA, if a 0.225 M HA solution has a **pOH** of 12.05?

6) 38.0% (m/m) HCl has a density of 1.189 g/mL. Determine the concentration of this aqueous solution in terms of :

a) molality

b) molarity