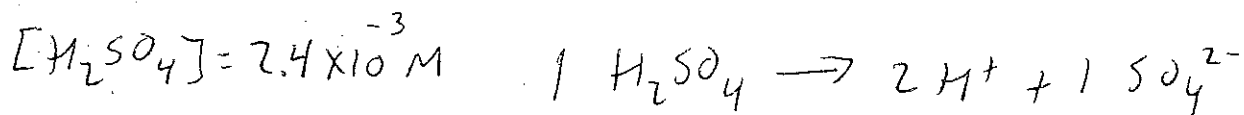


Example Of PH Calculations

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Answer the question showing all appropriate work.

1. What is the pH of a $2.4\text{E-}3\text{M H}_2\text{SO}_4$ solution?



pH = ?

$$[\text{H}^+] = (2.4 \times 10^{-3} \text{ M}) \left(\frac{2 \text{ mole H}^+}{1 \text{ mole H}_2\text{SO}_4} \right) = 4.8 \times 10^{-3} \text{ M}$$

$$\text{pH} = -\log [\text{H}^+]$$

$$\text{pH} = -\log (4.8 \times 10^{-3} \text{ M})$$

$$\text{pH} = -(-2.318)$$

$$\text{pH} = 2.318$$

$$\boxed{\text{pH} = 2.32}$$

* Remember, # of sig fig in concentration equals the # of decimal places in pH value.

2. What is the $[\text{Ca}(\text{OH})_2]$ (concentration in units of Molarity) of a solution that had a pOH of 4.63?

$$\text{pOH} = 4.63$$

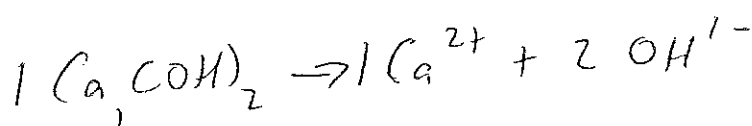
$$[\text{Ca}(\text{OH})_2] = ?$$

$$[\text{OH}^{1-}] = 10^{-\text{pOH}}$$

$$[\text{OH}^{1-}] = 10^{-4.63}$$

$$[\text{OH}^{1-}] = 2.34 \times 10^{-5} \text{ M}$$

using 10^x
button on calculator



$$[\text{Ca}(\text{OH})_2] = (2.34 \times 10^{-5} \text{ M OH}^{1-}) \left(\frac{1 \text{ mol Ca}(\text{OH})_2}{2 \text{ mol OH}^{1-}} \right)$$

$$x = 1.17 \times 10^{-5} \text{ M}$$

$$[\text{Ca}(\text{OH})_2] = 1.2 \times 10^{-5} \text{ M}$$

* Remember, # of decimal places in pH value is equal to the # of sig fig in concentration.

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