

Water/Solutions Quiz KEY

- Which is a true statement?
 - Ice is denser than water because of hydrogen bonding
 - Water is denser than ice because of ionic bonding
 - Water is denser than ice because of hydrogen bonding**
 - Ice has the same density of liquid water, both are H₂O
- The statement "Like Dissolves Like" best describes:
 - NaCl + H₂O**
 - H₂O + gasoline
 - olive oil plus vinegar
 - C₆H₁₂O_{6(s)} + NaCl_(s)
- In a saturated solution of ammonium chloride that has a volume of 1200 mL, how many grams of NH₄Cl are dissolved into this water solvent?

AT 60°C

<u>NH₄Cl</u>	<u>57 grams</u>	<u>X grams</u>
water	100 mL	1200 mL

X = 684 grams ammonium chloride in 1200 mL water

1	C
2	A
3	684 g
4	3.85 M
5	29 mL

- What is the molarity of a solution that contains 506 g of KOH and has a volume of 2350 mL

Molarity = $\frac{\text{Number of Moles}}{\text{LITERS of solution}}$

Convert: 506 grams KOH = 9.09 moles KOH & Convert: 2350 mL = 2.35 Liters

Molarity = $\frac{9.09 \text{ Moles}}{2.35 \text{ Liters}} = 3.85 \text{ Molar} = 3.85 \text{ M}$

- How many mL of 2.0 M HCl are needed to make 144 mL of 0.4M HCl solution?

M₁V₁ = M₂V₂ (2.0 M)(V₁) = (0.4 M)(144 mL) V₁ = 28.8 mL = 29 mL

or

M₁V₁ = M₂V₂ (2.0 M)(V₁) = (0.4 M)(0.144 L) V₁ = 0.0288 L = 0.029 L