

EXERCISES:

1. State whether each of the following substances is expected to form an IONIC or MOLECULAR solution.
a) $\text{RbBr}(s)$ c) $\text{CsNO}_3(s)$ e) $\text{S}_8(s)$ g) $\text{NaCH}_3\text{COO}(s)$ i) $\text{HNO}_3(l)$
b) $\text{CHCl}_3(l)$ d) $\text{CuSO}_4(s)$ f) $\text{CrCl}_3(s)$ h) $\text{ICl}(s)$ j) $\text{CH}_4(g)$
2. Write equations to show the dissolving of the following substances in water.
a) $(\text{NH}_4)_2\text{SO}_4(s)$ b) $\text{CH}_3\text{CH}_2\text{OH}(l)$ c) $\text{K}_2\text{CO}_3(s)$ d) $\text{CaCl}_2(s)$

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18. Calculate the concentration of all the ions in each of the following solutions.
a) 0.25 M FeCl_3 d) 0.41 g of $\text{Ca}(\text{OH})_2$ in 500 mL of aqueous solution
b) 1.5×10^{-3} M $\text{Al}_2(\text{SO}_4)_3$ e) 2.50 g of KBr in 150 mL of aqueous solution
c) 12.0 g of $(\text{NH}_4)_2\text{CO}_3$ in 2.50 L
19. a) Write an equation showing the equilibrium in a saturated solution of lead (II) bromide, PbBr_2 .
b) The solubility of PbBr_2 is 0.844 g/100 mL. What is its molar solubility?
c) Calculate the concentrations of $\text{Pb}^{2+}(aq)$ and $\text{Br}^-(aq)$ in a saturated solution of PbBr_2 .
20. Calculate the concentration of all the ions present when
a) 25.0 mL of water is added to 20.0 mL of 0.35 M Fe^{3+} .
b) 50.0 mL of 0.25 M Ag^+ is mixed with 100.0 mL of 0.10 M NO_3^- .
c) 15.0 mL of 6.5×10^{-5} M Cu^{2+} is mixed with 40.0 mL of 3.2×10^{-3} M Cl^- .
d) 55.0 mL of 0.185 M MgCl_2 is mixed with 25.0 mL of 4.8×10^{-2} M CaBr_2 .
e) 95.0 mL of 8.65×10^{-4} M $\text{Al}(\text{NO}_3)_3$ is mixed with 15.0 mL of 7.50×10^{-6} M Ag_2SO_4 .
f) 50.0 mL of 0.200 M CaCl_2 is mixed with 50.0 mL of 0.200 M NaCl .
g) 25.0 mL of 0.360 M NH_4Br is mixed with 75.0 mL of 0.160 M $(\text{NH}_4)_2\text{SO}_4$.
h) 10.0 mL of 0.100 M $\text{Ba}(\text{NO}_3)_2$ is mixed with 40.0 mL of 0.300 M AgNO_3 .

