

Student Name: \_\_\_\_\_ Date: \_\_\_\_\_

# 40S Chemistry Science Notebook

## Solubility and Solutions Key

### KSP Assignment #1:

1.  $K_{sp} = [Ca^{2+}][SO_4^{2-}] = 2.4 \times 10^{-5}$
2.  $K_{sp} = [Ag^+]^2 [CrO_4^{2-}]$
3. AgCl = most soluble . It has the highest Ksp. AgI = least soluble. It has the lowest Ksp.
4.  $9.2 \times 10^{-9}$  mol/L
5.  $1.0 \times 10^{-5}$  mol/L
6.  $1.3 \times 10^{-5}$  mol/L
7.  $2.6 \times 10^{-3}$  mol/L
8.  $1.1 \times 10^{-4}$  mol/L

### KSP Assignment #2:

1.  $K_{sp} = 4.00 \times 10^{-15}$
2.  $3.42 \times 10^{-8}$  mol/L
3.  $K_{sp} = 7.09 \times 10^{-9}$
4.  $1.40 \times 10^{-14}$  mol/L

### KSP Assignment #3:

- |  |  |
|--|--|
| 1d. $[Ag^+] = 1.33 \times 10^{-5}$ mol/L     | $[Cl^-] = 1.33 \times 10^{-5}$ mol/L       |
| 2d. $[Al^{3+}] = 9.91 \times 10^{-11}$ mol/L | $[PO_4^{3-}] = 9.91 \times 10^{-11}$ mol/L |
| 3d. $[Ba^{2+}] = 1.03 \times 10^{-5}$ mol/L  | $[SO_4^{2-}] = 1.03 \times 10^{-5}$ mol/L  |
| 4d. $[Sn^{2+}] = 1.11 \times 10^{-9}$ mol/L  | $[OH^-] = 2.22 \times 10^{-9}$ mol/L       |
| 5d. $[Ag^+] = 1.31 \times 10^{-4}$ mol/L     | $[CrO_4^{2-}] = 6.54 \times 10^{-5}$ mol/L |
| 6d. $[Fe^{3+}] = 9.94 \times 10^{-11}$ mol/L | $[OH^-] = 2.98 \times 10^{-10}$ mol/L      |
| 7d. $[Ag^+] = 1.28 \times 10^{-4}$ mol/L     | $[PO_4^{3-}] = 4.26 \times 10^{-5}$ mol/L  |
| 8d. $[Al^{3+}] = 6.00 \times 10^{-7}$ mol/L  | $[Cl^-] = 1.80 \times 10^{-6}$ mol/L       |
| 9d. $[Bi^{3+}] = 8.84 \times 10^{-4}$ mol/L  | $[S^{2-}] = 1.33 \times 10^{-3}$ mol/L     |
| 10d. $[Cu^{2+}] = 5.33 \times 10^{-8}$ mol/L | $[PO_4^{3-}] = 3.56 \times 10^{-8}$ mol/L  |

### KSP Assignment #4:

- 1a.  $9.2 \times 10^{-9}$  mol/L  
b.  $8.5 \times 10^{-15}$  mol/L

- c.  $4.25 \times 10^{-15}$  mol/L  
d.  $8.5 \times 10^{-15}$  mol/L

- 2a.  $4.3 \times 10^{-3}$  mol/L  
b.  $3.2 \times 10^{-7}$  mol/L

- c.  $2.0 \times 10^{-4}$  mol/L

- 3a.  $3.3 \times 10^{-7}$  mol/L  
b.  $4.0 \times 10^{-23}$  mol/L

- c.  $5.0 \times 10^{-24}$  mol/L  
d.  $3.9 \times 10^{-9}$  mol/L

### KSP Assignment #5:

1. Not Provided.

- 2a.  $7.94 \times 10^{-17}$  mol/L  
b.  $1.51 \times 10^{-3}$  mol/L

- $7.59 \times 10^{-15}$  g/L  
 $6.96 \times 10^{-1}$  mol/L

- 3a.  $K_{sp} = 4.13 \times 10^{-11}$   
b.  $K_{sp} = 4.89 \times 10^{-9}$

4.  $K_{sp} = 5.2 \times 10^{-13}$

5.  $K_{sp} = 7.7 \times 10^{-51}$