

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

Score : \_\_\_\_\_

## Solubility Rules Practice Worksheet

1. Classify each substance as being soluble or insoluble in water.

I.  $\text{Mg}(\text{PO}_4)_2$  - \_\_\_\_\_

VI.  $\text{KBr}$  - \_\_\_\_\_

II.  $\text{KOH}$  - \_\_\_\_\_

VII.  $\text{Pb}(\text{CO}_3)$  - \_\_\_\_\_

III.  $\text{NiCl}_2$  - \_\_\_\_\_

VIII.  $\text{PbI}_2$  - \_\_\_\_\_

IV.  $\text{NH}_4\text{OH}$  - \_\_\_\_\_

IX.  $\text{BaSO}_4$  - \_\_\_\_\_

V.  $\text{Hg}_2\text{SO}_4$  - \_\_\_\_\_

X.  $\text{NiCl}_2$  - \_\_\_\_\_

2. Show the ions that formed the following compounds:

I.  $\text{Zn}_3(\text{PO}_4)_2$

II.  $\text{Al}_2\text{S}_3$

III. Iron (III) sulfide

IV. Ammonium cyanide

3. Form 4 water-soluble compounds by combining ions from the ions below:

$\text{Cl}^-$

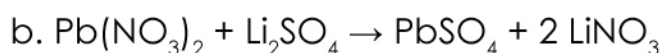
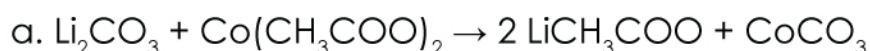
$\text{CO}_3^{2-}$

$\text{PO}_4^{3-}$

$\text{Li}^+$

$\text{Sr}^{2+}$

4. Identify the precipitate in the following reaction. Circle the correct answer.



5. Name or give the chemical formula for each of the following compounds and state whether they are soluble (will dissolve) or insoluble (will not dissolve) in solution.

Chemical Formula	Name	Solubility
$\text{Zn}_3(\text{PO}_4)_2$		
	Silver bromide	
$\text{KNO}_3$		
	Aluminum sulfide	
	Silver acetate	

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# Solubility Rules Practice Worksheet

## Answers

1. Classify each substance as being soluble or insoluble in water.

I.  $\text{Mg}(\text{PO}_4)_2$  - Insoluble

VI.  $\text{KBr}$  - Soluble

II.  $\text{KOH}$  - Soluble

VII.  $\text{Pb}(\text{CO}_3)$  - Insoluble

III.  $\text{NiCl}_2$  - Soluble

VIII.  $\text{PbI}_2$  - Insoluble

IV.  $\text{NH}_4\text{OH}$  - Soluble

IX.  $\text{BaSO}_4$  - Insoluble

V.  $\text{Hg}_2\text{SO}_4$  - Insoluble

X.  $\text{NiCl}_2$  - Soluble

2. Show the ions that formed the following compounds:

I.  $\text{Zn}_3(\text{PO}_4)_2$

II.  $\text{Al}_2\text{S}_3$

$\text{Zn}^{2+}$  and  $\text{PO}_4^{3-}$

$\text{Al}^{3+}$  and  $\text{S}^{2-}$

III. Iron (III) sulfide

IV. Ammonium cyanide

$\text{Fe}_2\text{S}_3$  -  $\text{Fe}^{3+}$  and  $\text{S}^{2-}$

$\text{NH}_4\text{CN}$  -  $\text{NH}_4^+$  and  $\text{CN}^-$

3. Form 4 water-soluble compounds by combining ions from the ions below:

$\text{Cl}^-$

$\text{CO}_3^{2-}$

$\text{PO}_4^{3-}$

$\text{Li}^+$

$\text{Sr}^{2+}$

$\text{LiCl}$ ,  $\text{SrCl}_2$ ,  $\text{Li}_2\text{CO}_3$ ,  $\text{Li}_3\text{PO}_4$

4. Identify the precipitate in the following reaction. Circle the correct answer.

a.  $\text{Li}_2\text{CO}_3 + \text{Co}(\text{CH}_3\text{COO})_2 \rightarrow 2 \text{LiCH}_3\text{COO} + \text{CoCO}_3$

b.  $\text{Pb}(\text{NO}_3)_2 + \text{Li}_2\text{SO}_4 \rightarrow \text{PbSO}_4 + 2 \text{LiNO}_3$

5. Name or give the chemical formula for each of the following compounds and state whether they are soluble (will dissolve) or insoluble (will not dissolve) in solution.

Chemical Formula	Name	Solubility
$\text{Zn}_3(\text{PO}_4)_2$	Zinc phosphate	Insoluble
$\text{AgBr}$	Silver bromide	Insoluble
$\text{KNO}_3$	Potassium nitrate	Soluble
$\text{Al}_2\text{S}_3$	Aluminum sulfide	Insoluble
$\text{AgC}_2\text{H}_3\text{O}_2$	Silver acetate	Soluble