

Name: _____

Blk: _____ Date: _____

Chemistry 12
Solubility Lesson #7
PREDICTING WHETHER A PRECIPITATE WILL FORM

In this section you are asked to determine if when you mix two solutions containing ions whether or not a precipitate will form. This is commonly called the **TRIAL ION PRODUCT** Calculation or "TIP" (LIKE A TRIAL K_{eq})

Q =

K_{sp} =

There are **THREE POSSIBLE OUTCOMES** once you have calculated the Trial Ion Product:

A. $Q < K_{sp}$

Here we have less than what is needed for a saturated solution so the result is:
NO A PPT WILL NOT FORM

B. $Q = K_{sp}$

Here we have just enough for a saturated solution so the result is:
A MINIMUM AMOUNT OF PPT WILL FORM

C. $Q > K_{sp}$

Here we have more than what is needed for a saturated solution so the result is:

YES A PPT WILL FORM

Example 1: Will a precipitate form when 5.0 mL of 6.0×10^{-5} M Ag^+ mixes with 10.0 mL of 4.2×10^{-6} M Cl^- ?

1st:

2nd:

3rd:

4th:

Example 2: If 25.0 mL of $4.50 \times 10^{-3} \text{ M Pb(NO}_3)_2$ is mixed with 35.0 mL of $2.80 \times 10^{-3} \text{ M MgI}_2$, will a precipitate form?

1st:

2nd:

3rd:

4th:

Example 3. What $[\text{Cl}^-]$ is required to JUST START precipitation of AgCl (s) from a $3.6 \times 10^{-3} \text{ M}$ solution of Ag^+ ?

1st:

2nd:

3rd:

4th: