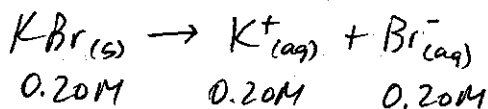## Dissociation Equations/Ion Concentrations

Name: **Key**.

Write dissociation equations for each of the following ionic compounds (salts) and determine the concentration of each ion in the resulting solution.
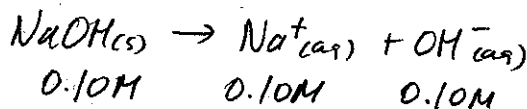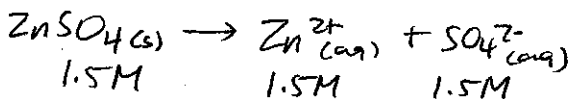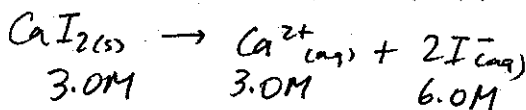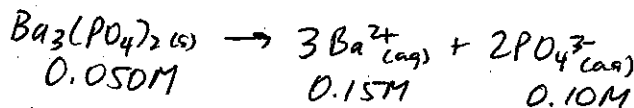
Example:
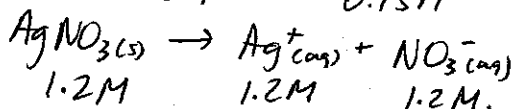
$$0.50 \text{ M } SrCl_2: \quad SrCl_{2\,(s)} \longrightarrow Sr^{2+}_{(aq)} + 2\,Cl^-_{(aq)}$$
$$\mathbf{0.50\ M} \qquad\qquad \mathbf{0.50\ M} \quad \mathbf{1.0\ M}$$

1. 0.20 M KBr

$$KBr_{(s)} \longrightarrow K^+_{(aq)} + Br^-_{(aq)}$$
$$0.20M \qquad 0.20M \qquad 0.20M$$

2. 0.10 M NaOH

$$NaOH_{(s)} \longrightarrow Na^+_{(aq)} + OH^-_{(aq)}$$
$$0.10M \qquad 0.10M \qquad 0.10M$$

3. 1.5 M ZnSO$_4$

$$ZnSO_{4\,(s)} \longrightarrow Zn^{2+}_{(aq)} + SO_4^{2-}_{(aq)}$$
$$1.5M \qquad 1.5M \qquad 1.5M$$

4. 3.0 M CaI$_2$

$$CaI_{2\,(s)} \longrightarrow Ca^{2+}_{(aq)} + 2I^-_{(aq)}$$
$$3.0M \qquad 3.0M \qquad 6.0M$$

5. 0.050 M Ba$_3$(PO$_4$)$_2$

$$Ba_3(PO_4)_{2\,(s)} \longrightarrow 3Ba^{2+}_{(aq)} + 2PO_4^{3-}_{(aq)}$$
$$0.050M \qquad 0.15M \qquad 0.10M$$

6. 1.2 M AgNO$_3$

$$AgNO_{3\,(s)} \longrightarrow Ag^+_{(aq)} + NO_3^-_{(aq)}$$
$$1.2M \qquad 1.2M \qquad 1.2M.$$

7. 5.0 M CaCl$_2$

$$CaCl_{2\,(s)} \longrightarrow Ca^{2+}_{(aq)} + 2Cl^-_{(aq)}$$
$$5.0M \qquad 5.0M \qquad 1.0\times10^1 M$$

8. 0.40 M Li$_2$CO$_3$

$$Li_2CO_{3\,(s)} \longrightarrow 2Li^+_{(aq)} + CO_3^{2-}_{(aq)}$$
$$0.40M \qquad 0.80M \qquad 0.40M$$

9. 1.5 M Fe(NO$_3$)$_2$

$$Fe(NO_3)_{2\,(s)} \longrightarrow Fe^{2+}_{(aq)} + 2NO_3^-_{(aq)}$$
$$1.5M \qquad 1.5M \quad 3.0M.$$

10. 2.0 M Fe$_2$(SO$_4$)$_3$

$$Fe_2(SO_4)_{3\,(s)} \longrightarrow 2Fe^{3+}_{(aq)} + 3SO_4^{2-}_{(aq)}$$
$$2.0M \qquad 4.0M \qquad 6.0M.$$

11. 0.80 M Ca(NO$_3$)$_2$

$$Ca(NO_3)_{2\,(s)} \longrightarrow Ca^{2+}_{(aq)} + 2NO_3^-_{(aq)}$$
$$0.80M \qquad 0.80M \qquad 1.6M$$

12. 0.55 M Ag$_2$S

$$Ag_2S_{(s)} \longrightarrow 2Ag^+_{(aq)} + S^{2-}_{(aq)}$$
$$0.55M \qquad 1.1M \qquad 0.55M$$
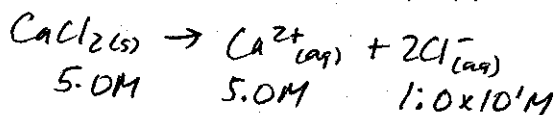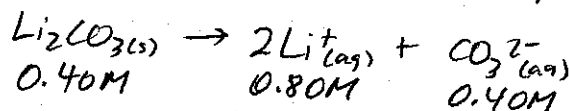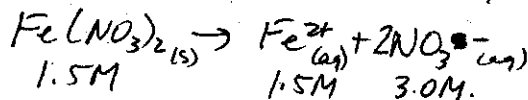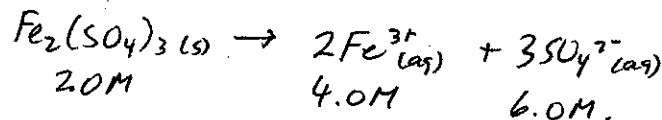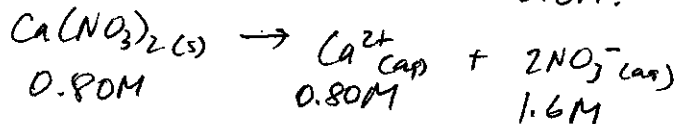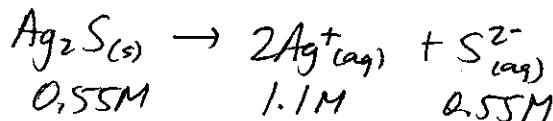
13. 0.60 M AlBr₃

$$AlBr_{3(s)} \rightarrow Al^{3+} + 3Br^-$$
0.60M   0.60M   1.8M

14. 1.25 M Mg(OH)₂

$$Mg(OH)_{2\,(s)} \rightarrow Mg^{2+}_{(aq)} + 2OH^-_{(aq)}$$
1.25M   1.25M   2.50M

15. 0.70 M NH₄Cl

$$NH_4Cl_{(s)} \rightarrow NH_4^+{}_{(aq)} + Cl^-_{(aq)}$$
0.70M   0.70M   0.70M

16. 2.20 M Na₂CO₃

$$Na_2CO_{3(s)} \rightarrow 2Na^+_{(aq)} + CO_3^{2-}{}_{(aq)}$$
2.20M   4.40M   2.20M

17. 1.65 M (NH₄)₂SO₄

$$(NH_4)_2SO_{4(s)} \rightarrow 2NH_4^+{}_{(aq)} + SO_4^{2-}{}_{(aq)}$$
1.65M   3.30M   1.65M

18. 0.40 M Pb₃(PO₄)₂

$$Pb_3(PO_4)_{2\,(s)} \rightarrow 3Pb^{2+}{}_{(aq)} + 2PO_4^{3-}{}_{(aq)}$$
0.40M   1.2M   0.80M

19. 1.80 M MgCO₃

$$MgCO_{3(s)} \rightarrow Mg^{2+}{}_{(aq)} + CO_3^{2-}{}_{(aq)}$$
1.80M   1.80M   1.80M

20. 0.35 M K₂SO₄

$$K_2SO_{4(s)} \rightarrow 2K^+_{(aq)} + SO_4^{2-}{}_{(aq)}$$
0.35M   0.70M   0.35M

21. 0.20 M MnO₂

$$MnO_{2\,(s)} \rightarrow Mn^{4+}_{(aq)} + 2O^{2-}_{(aq)}$$
0.20M   0.20M   0.40M

22. 2.50 M Strontium iodide

$$SrI_{2(s)} \rightarrow Sr^{2+}_{(aq)} + 2I^-_{(aq)}$$
2.50M   2.50M   5.00M

23. 0.10 M Barium sulfide

$$BaS_{(s)} \rightarrow Ba^{2+}_{(aq)} + S^{2-}_{(aq)}$$
0.10M   0.10M   0.10M

24. 1.60 M Cesium chloride

$$CsCl_{(s)} \rightarrow Cs^+_{(aq)} + Cl^-_{(aq)}$$
1.60M   1.60M   1.60M

25. 0.85 M Beryllium hydroxide

$$Be(OH)_{2\,(s)} \rightarrow Be^{2+}_{(aq)} + 2OH^-_{(aq)}$$
0.85M   0.85M   1.7M