

Dissociation

Activity 1: Ion ID

Question Group 1

Question 1

Consider the ionic compound having the formula **NH₄I**. It dissociates into ions when it dissolves in water. Identify the formula (including the charge) of the ions that are formed from its dissociation.

Question 2

Consider the ionic compound having the formula **NH₄Cl**. It dissociates into ions when it dissolves in water. Identify the formula (including the charge) of the ions that are formed from its dissociation.

Question 3

Consider the ionic compound having the formula **NH₄Br**. It dissociates into ions when it dissolves in water. Identify the formula (including the charge) of the ions that are formed from its dissociation.

Question Group 2

Question 4

Consider the ionic compound having the formula **Al₂(SO₄)₃**. It dissociates into ions when it dissolves in water. Identify the formula (including the charge) of the ions that are formed from its dissociation.

Question 5

Consider the ionic compound having the formula **Fe₂(SO₄)₃**. It dissociates into ions when it dissolves in water. Identify the formula (including the charge) of the ions that are formed from its dissociation.

Question 6

Consider the ionic compound having the formula **Cr₂(SO₄)₃**. It dissociates into ions when it dissolves in water. Identify the formula (including the charge) of the ions that are formed from its dissociation.

Question Group 3

Question 7

Consider the ionic compound having the formula **$\text{Zn}_3(\text{PO}_4)_2$** . It dissociates into ions when it dissolves in water. Identify the formula (including the charge) of the ions that are formed from its dissociation.

Question 8

Consider the ionic compound having the formula **$\text{Cu}_3(\text{PO}_4)_2$** . It dissociates into ions when it dissolves in water. Identify the formula (including the charge) of the ions that are formed from its dissociation.

Question 9

Consider the ionic compound having the formula **$\text{Ca}_3(\text{PO}_4)_2$** . It dissociates into ions when it dissolves in water. Identify the formula (including the charge) of the ions that are formed from its dissociation.

Question Group 4

Question 10

Consider the ionic compound named **copper(II) chloride**. It dissociates into ions when it dissolves in water. Identify the formula (including the charge) of the ions that are formed from its dissociation.

Question 11

Consider the ionic compound named **lead(II) chloride**. It dissociates into ions when it dissolves in water. Identify the formula (including the charge) of the ions that are formed from its dissociation.

Question 12

Consider the ionic compound named **iron(II) chloride**. It dissociates into ions when it dissolves in water. Identify the formula (including the charge) of the ions that are formed from its dissociation.

Question Group 5**Question 13**

Consider the three ionic compounds named below. Each compound dissociates when dissolved in water. Identify the formula (including the charge) of the cation and the anion formed from the dissociation of each compound.

Compound Name	Cation Formula	Anion Formula
Sodium sulfide		
Sodium sulfate		
Sodium sulfite		

Question 14

Consider the three ionic compounds named below. Each compound dissociates when dissolved in water. Identify the formula (including the charge) of the cation and the anion formed from the dissociation of each compound.

Compound Name	Cation Formula	Anion Formula
Sodium sulfate		
Sodium sulfite		
Sodium sulfide		

Question 15

Consider the three ionic compounds named below. Each compound dissociates when dissolved in water. Identify the formula (including the charge) of the cation and the anion formed from the dissociation of each compound.

Compound Name	Cation Formula	Anion Formula
Sodium sulfite		
Sodium sulfide		
Sodium sulfate		

Question Group 6**Question 16**

Consider the three ionic compounds named below. Each compound dissociates when dissolved in water. Identify the formula (including the charge) of the cation and the anion formed from the dissociation of each compound.

Compound Name	Cation Formula	Anion Formula
Calcium nitride		
Calcium nitrate		
Calcium nitrite		

Question 17

Consider the three ionic compounds named below. Each compound dissociates when dissolved in water. Identify the formula (including the charge) of the cation and the anion formed from the dissociation of each compound.

Compound Name	Cation Formula	Anion Formula
Calcium nitrate		
Calcium nitrite		
Calcium nitride		

Question 18

Consider the three ionic compounds named below. Each compound dissociates when dissolved in water. Identify the formula (including the charge) of the cation and the anion formed from the dissociation of each compound.

Compound Name	Cation Formula	Anion Formula
Calcium nitrite		
Calcium nitride		
Calcium nitrate		

Activity 2: Dissociation Equations

Question Group 7

Question 19

Create the balanced chemical equation that describes the dissociation of CaCl_2 into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question 20

Create the balanced chemical equation that describes the dissociation of BaCl_2 into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question 21

Create the balanced chemical equation that describes the dissociation of MgCl_2 into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question Group 8

Question 22

Create the balanced chemical equation that describes the dissociation of $\text{Al}(\text{NO}_3)_3$ into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question 23

Create the balanced chemical equation that describes the dissociation of $\text{Fe}(\text{NO}_3)_3$ into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question 24

Create the balanced chemical equation that describes the dissociation of $\text{Cr}(\text{NO}_3)_3$ into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question Group 9**Question 25**

Create the balanced chemical equation that describes the dissociation of Na_3PO_4 into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question 26

Create the balanced chemical equation that describes the dissociation of K_2SO_4 into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question 27

Create the balanced chemical equation that describes the dissociation of Na_2CO_3 into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question Group 10**Question 28**

Create the balanced chemical equation that describes the dissociation of ammonium sulfide into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question 29

Create the balanced chemical equation that describes the dissociation of ammonium phosphide into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question 30

Create the balanced chemical equation that describes the dissociation of ammonium selenide into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question Group 11

Question 31

Create the balanced chemical equation that describes the dissociation of copper(II) phosphate into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question 32

Create the balanced chemical equation that describes the dissociation of lead(II) phosphate into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question 33

Create the balanced chemical equation that describes the dissociation of iron(II) phosphate into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question Group 12

Question 34

Create the balanced chemical equation that describes the dissociation of aluminum sulfate into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question 35

Create the balanced chemical equation that describes the dissociation of iron(III) sulfate into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Question 36

Create the balanced chemical equation that describes the dissociation of chromium(III) sulfate into ions when dissolved in water. Identify the ions and their coefficients on the product side of the equation.

Activity 3: Net Ionic Equations

Question Group 13

Question 37

The ionic compound magnesium chloride is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 1.20 M magnesium chloride.

Question 38

The ionic compound barium chloride is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 1.20 M barium chloride.

Question 39

The ionic compound calcium chloride is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 0.60 M calcium chloride.

Question Group 14

Question 40

The ionic compound sodium phosphate is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 1.20 M sodium phosphate.

Question 41

The ionic compound potassium phosphate is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 1.50 M potassium phosphate.

Question 42

The ionic compound lithium phosphate is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 1.80 M lithium phosphate.

Question Group 15

Question 43

The ionic compound aluminum chloride is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 1.20 M aluminum chloride.

Question 44

The ionic compound iron(III) chloride is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 1.00 M iron(III) chloride.

Question 45

The ionic compound chromium(III) chloride is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 1.80 M chromium(III) chloride.

Question Group 16

Question 46

The ionic compound aluminum sulfate is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 0.90 M aluminum sulfate.

Question 47

The ionic compound iron(III) sulfate is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 0.90 M iron (III) sulfate.

Question 48

The ionic compound chromium(III) sulfate is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 1.20 M chromium(III) sulfate.

Question Group 17

Question 49

The ionic compound ammonium sulfate is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 1.20 M ammonium sulfate.

Question 50

The ionic compound ammonium sulfite is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 1.60 M ammonium sulfite.

Question 51

The ionic compound ammonium sulfide is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 1.80 M ammonium sulfide.

Question Group 18**Question 52**

The ionic compound lithium carbonate is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 1.20 M lithium carbonate.

Question 53

The ionic compound sodium carbonate is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 1.50 M sodium carbonate.

Question 54

The ionic compound potassium carbonate is a strong electrolyte that completely dissociates when dissolved in water. Determine the concentration of the two ions in an aqueous solution of 1.80 M potassium carbonate.

