

WRITE IN THE CORRECT FORMULA THEN BALANCE THE CHEMICAL EQUATIONS

Note: Many elements exist as diatomic molecules. ie. H₂, O₂, N₂, F₂, Cl₂, Br₂, I₂

| | | | | | | |
|-----|--------------------------------|---|-----------------|---|--------------------------------|--------------------|
| 1. | Hydrogen | + | Oxygen | → | Water | |
| | | + | | → | | |
| | METALLIC OXIDE | + | WATER | → | BASE | |
| 2. | Sodium oxide | + | Water | → | Sodium hydroxide | |
| | | + | | → | | |
| 3. | Calcium oxide | + | Water | → | Calcium hydroxide | |
| | | + | | → | | |
| 4. | Potassium oxide | + | Water | → | Potassium hydroxide | |
| | | + | | → | | |
| 5. | Nitrogen | + | Hydrogen | → | Ammonia | |
| | | + | | → | NH ₃ | |
| | NON METALLIC OXIDE | + | WATER | → | ACID | |
| 6. | Carbon dioxide | + | Water | → | Carbonic acid | |
| | | + | | → | H ₂ CO ₃ | |
| 7. | Sulfur dioxide | + | Water | → | Sulfurous acid | |
| | | + | | → | H ₂ SO ₃ | |
| 8. | Sulfur trioxide | + | Water | → | Sulfuric acid | |
| | | + | | → | H ₂ SO ₄ | |
| 9. | Nitrogen dioxide | + | Water | → | Nitric acid | + Nitrous acid |
| | | + | | → | HNO ₃ | + HNO ₂ |
| 10. | Phosphorus pentoxide | + | Water | → | Phosphoric acid | |
| | P ₄ O ₁₀ | + | | → | H ₃ PO ₄ | |
| 11. | Hydrogen | + | Chlorine | → | Hydrogen chloride | |
| | | + | | → | | |
| 12. | Sulfuric acid | + | Sodium chloride | → | Hydrochloric acid | + Sodium sulfate |
| | | + | | → | | + |

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| | | | | | | | |
|-----|-------------------------------|---|-------------------------------|---|---------------------|---|------------------|
| 13. | Iron | + | Oxygen | → | Iron(III) oxide | | |
| | | + | | → | | | |
| 14. | Aluminium | + | Fluorine | → | Aluminium fluoride | | |
| | | + | | → | | | |
| 15. | Lead (IV) oxide | + | Carbon | → | Lead | + | Carbon dioxide |
| | | + | | → | | + | |
| 16. | Magnesium hydroxide | + | Hydrochloric acid | → | Magnesium chloride | + | Water |
| | | + | | → | | + | |
| 17. | Potassium | + | Water | → | Potassium hydroxide | + | Hydrogen |
| | | + | | → | | + | |
| 18. | Iron | + | Sulfuric acid | → | Iron(II) sulfate | + | Hydrogen |
| | | + | | → | | + | |
| 19. | | | Hydrogen peroxide | → | Oxygen | + | Water |
| | | | H ₂ O ₂ | → | | + | |
| 20. | Lithium hydroxide | + | Carbon dioxide | → | Lithium carbonate | + | Water |
| | | + | | → | | + | |
| 21. | Copper sulfate | + | Iron | → | Iron sulfate | + | Copper |
| | | + | | → | | + | |
| 22. | Calcium bromide | + | Chlorine | → | Calcium chloride | + | Bromine |
| | | + | | → | | + | |
| 23. | Sulfuric acid | + | Barium hydroxide | → | Barium sulfate | + | Water |
| | | + | | → | | + | |
| 24. | Copper(II) sulfide | + | Hydrogen | → | Copper | + | Hydrogen sulfide |
| | | + | | → | | + | |
| 25. | Propane gas (L.P.G.) | + | Oxygen | → | Carbon dioxide | + | Water |
| | C ₃ H ₈ | + | | → | | + | |

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| ADVANCED CHEMICAL EQUATIONS | | | | | |
|-----------------------------|--------------------------------|---|-------------------|---|--|
| 26. | Iron(III) oxide | + | Carbon monoxide | → | Iron + Carbon dioxide |
| | | | | → | |
| 27. | Copper | + | Nitric acid | → | Nitrogen dioxide + Copper(II) nitrate + Water |
| | | | | → | NO ₂ |
| 28. | Carbon dioxide | + | Water | → | Glucose + Oxygen |
| | | | | → | C ₆ H ₁₂ O ₆ |
| 29. | | | Glucose | → | Carbon dioxide + Ethanol |
| | | | | → | C ₂ H ₅ OH |
| 30. | Calcium hypochlorite | + | Hydrochloric acid | → | Calcium chloride + Water + Chlorine |
| | Ca(ClO) ₂ | | | → | |
| 31. | Phosphorus pentachloride | + | Water | → | Phosphoric acid + Hydrogen chloride |
| | PCl ₅ | + | | → | H ₃ PO ₄ |
| 32. | Iron(II,III) oxide | + | Carbon monoxide | → | Iron + Carbon dioxide |
| | Fe ₃ O ₄ | + | CO | → | |
| 33. | Ammonia | + | Oxygen | → | Nitrogen monoxide + Water |
| | NH ₃ | | | → | NO |
| 34. | Copper | + | Nitric acid | → | Nitrogen monoxide + Copper(II) nitrate + Water |
| | | | | → | NO |
| 35. | Potassium permanganate | + | Hydrochloric acid | → | Manganese chloride + Potassium chloride + Chlorine + Water |
| | KMnO ₄ | | | → | MnCl ₂ |

WRITE IN THE CORRECT FORMULA THEN BALANCE THE CHEMICAL EQUATIONS - ANSWERS

Note: Many elements exist as diatomic molecules. ie. H₂, O₂, N₂, F₂, Cl₂, Br₂, I₂

| | | | | | | | |
|-----|--------------------------------|---|-------------------|---|---------------------------------|---|---------------------------------|
| 1. | Hydrogen | + | Oxygen | → | Water | | |
| | 2H ₂ | + | O ₂ | → | 2H ₂ O | | |
| | METALLIC OXIDE | + | WATER | → | BASE | | |
| 2. | Sodium oxide | + | Water | → | Sodium hydroxide | | |
| | Na ₂ O | + | H ₂ O | → | 2NaOH | | |
| 3. | Calcium oxide | + | Water | → | Calcium hydroxide | | |
| | CaO | + | H ₂ O | → | Ca(OH) ₂ | | |
| 4. | Potassium oxide | + | Water | → | Potassium hydroxide | | |
| | K ₂ O | + | H ₂ O | → | 2KOH | | |
| 5. | Nitrogen | + | Hydrogen | → | Ammonia | | |
| | N ₂ | + | 3H ₂ | → | 2NH ₃ | | |
| | NON METALLIC OXIDE | + | WATER | → | ACID | | |
| 6. | Carbon dioxide | + | Water | → | Carbonic acid | | |
| | CO ₂ | + | H ₂ O | → | H ₂ CO ₃ | | |
| 7. | Sulfur dioxide | + | Water | → | Sulfurous acid | | |
| | SO ₂ | + | H ₂ O | → | H ₂ SO ₃ | | |
| 8. | Sulfur trioxide | + | Water | → | Sulfuric acid | | |
| | SO ₃ | + | H ₂ O | → | H ₂ SO ₄ | | |
| 9. | Nitrogen dioxide | + | Water | → | Nitric acid | + | Nitrous acid |
| | 2NO ₂ | + | H ₂ O | → | HNO ₃ | + | HNO ₂ |
| 10. | Phosphorus pentoxide | + | Water | → | Phosphoric acid | | |
| | P ₄ O ₁₀ | + | 6H ₂ O | → | 4H ₃ PO ₄ | | |
| 11. | Hydrogen | + | Chlorine | → | Hydrogen chloride | | |
| | H ₂ | + | Cl ₂ | → | 2HCl | | |
| 12. | Sulfuric acid | + | Sodium chloride | → | Hydrochloric acid | + | Sodium sulfate |
| | H ₂ SO ₄ | + | 2NaCl | → | 2HCl | + | Na ₂ SO ₄ |

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| | | | | | | | |
|-----|--------------------------------|---|--------------------------------|---|---------------------------------|---|-------------------|
| 13. | Iron | + | Oxygen | → | Iron(III) oxide | | |
| | 4Fe | + | 3O ₂ | → | 2Fe ₂ O ₃ | | |
| 14. | Aluminium | + | Fluorine | → | Aluminium fluoride | | |
| | 2Al | + | 3F ₂ | → | 2AlF ₃ | | |
| 15. | Lead (IV) oxide | + | Carbon | → | Lead | + | Carbon dioxide |
| | PbO ₂ | + | C | → | Pb | + | CO ₂ |
| 16. | Magnesium hydroxide | + | Hydrochloric acid | → | Magnesium chloride | + | Water |
| | Mg(OH) ₂ | + | 2HCl | → | MgCl ₂ | + | 2H ₂ O |
| 17. | Potassium | + | Water | → | Potassium hydroxide | + | Hydrogen |
| | 2K | + | H ₂ O | → | 2KOH | + | H ₂ |
| 18. | Iron | + | Sulfuric acid | → | Iron(II) sulfate | + | Hydrogen |
| | Fe | + | H ₂ SO ₄ | → | FeSO ₄ | + | H ₂ |
| 19. | | | Hydrogen peroxide | → | Oxygen | + | Water |
| | | | 2H ₂ O ₂ | → | O ₂ | + | 2H ₂ O |
| 20. | Lithium hydroxide | + | Carbon dioxide | → | Lithium carbonate | + | Water |
| | 2LiOH | + | CO ₂ | → | Li ₂ CO ₃ | + | H ₂ O |
| 21. | Copper sulfate | + | Iron | → | Iron sulfate | + | Copper |
| | CuSO ₄ | + | Fe | → | FeSO ₄ | + | Cu |
| 22. | Calcium bromide | + | Chlorine | → | Calcium chloride | + | Bromine |
| | CaBr ₂ | + | Cl ₂ | → | CaCl ₂ | + | Br ₂ |
| 23. | Sulfuric acid | + | Barium hydroxide | → | Barium sulfate | + | Water |
| | H ₂ SO ₄ | + | Ba(OH) ₂ | → | BaSO ₄ | + | 2H ₂ O |
| 24. | Copper(II) sulfide | + | Hydrogen | → | Copper | + | Hydrogen sulfide |
| | CuS | + | H ₂ | → | Cu | + | H ₂ S |
| 25. | Propane gas (L.P.G.) | + | Oxygen | → | Carbon dioxide | + | Water |
| | C ₃ H ₈ | + | 5O ₂ | → | 3CO ₂ | + | 4H ₂ O |

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Note: Many elements exist as diatomic molecules. ie. H₂, O₂, N₂, F₂, Cl₂, Br₂, I₂

| ADVANCED CHEMICAL EQUATIONS | | | | | |
|-----------------------------|--|---|--|---|--|
| 26. | Iron(III) oxide Fe ₂ O ₃ | + | Carbon monoxide CO | → | Iron + Carbon dioxide 2Fe + 3CO ₂ |
| 27. | Copper Cu | + | Nitric acid 4HNO ₃ | → | Nitrogen dioxide + Copper(II) nitrate + Water 2NO ₂ + Cu(NO ₃) ₂ + 2H ₂ O |
| 28. | Carbon dioxide 6CO ₂ | + | Water 6H ₂ O | → | Glucose + Oxygen C ₆ H ₁₂ O ₆ + 6O ₂ |
| 29. | | | Glucose C ₆ H ₁₂ O ₆ | → | Carbon dioxide + Ethanol 2CO ₂ + 2C ₂ H ₅ OH |
| 30. | Calcium hypochlorite Ca(ClO) ₂ | + | Hydrochloric acid 4HCl | → | Calcium chloride + Water + Chlorine CaCl ₂ + 2H ₂ O + 2Cl ₂ |
| 31. | Phosphorus pentachloride PCl ₅ | + | Water 4H ₂ O | → | Phosphoric acid + Hydrogen chloride H ₃ PO ₄ + 5HCl |
| 32. | Iron(II,III) oxide Fe ₃ O ₄ | + | Carbon monoxide 4CO | → | Iron + Carbon dioxide 3Fe + 4CO ₂ |
| 33. | Ammonia 4NH ₃ | + | Oxygen 5O ₂ | → | Nitrogen monoxide + Water 4NO + 6H ₂ O |
| 34. | Copper 3Cu | + | Nitric acid 8HNO ₃ | → | Nitrogen monoxide + Copper(II) nitrate + Water 2NO + 3Cu(NO ₃) ₂ + 4H ₂ O |
| 35. | Potassium permanganate 2KMnO ₄ | + | Hydrochloric acid 16HCl | → | Manganese chloride + Potassium chloride + Chlorine + Water 2MnCl ₂ + 2KCl + 5Cl ₂ + 8H ₂ O |