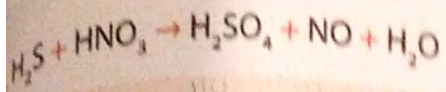
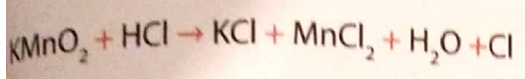


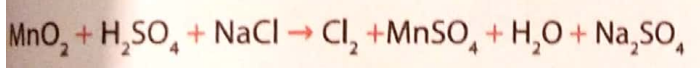
1. Balancea por óxido-reducción las siguientes ecuaciones químicas, teniendo en cuenta los números de oxidación y plantea semirreacciones para cada una, indica quien se oxida y quien se reduce.



<p><b>Izquierda</b></p> <p>H = 3x2 + 2x1 = 8</p> <p>S = 3x1 = 3</p> <p>N = 2x1 = 2</p> <p>O = 2x3 = 6</p>	<p><b>Derecha</b></p> <p>H = 4x2 = 8</p> <p>S = 3x1 = 3</p> <p>N = 2x1 = 2</p> <p>O = 2x1 + 4x1 = 6</p>	<p><math>3 \times 0 + 2 \times 0 = 3 \times 0 + 2 \times 0 + 4 \times 0</math></p> <p>O = 0</p> <p><math>3\text{H}_2\text{S} + 2\text{HNO}_3 \rightarrow 2\text{NO} + 3\text{S} + 4\text{H}_2\text{O}</math></p>
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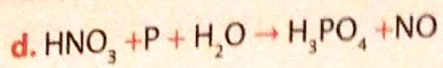


<p><b>Izquierda</b></p> <p>K = 1x1 = 1</p> <p>Mn = 1x1 = 1</p> <p>O = 1x2 = 2</p> <p>H = 4x1 = 4</p> <p>Cl = 4x1 = 4</p>	<p><b>Derecha</b></p> <p>K = 1x1 = 1</p> <p>Mn = 1x1 = 1</p> <p>O = 2x1 = 2</p> <p>H = 2x2 = 4</p> <p>Cl = 1x1 + 1x2 + 1x1 = 4</p>	<p><math>\text{KMnO}_2 + 4\text{HCl} \rightarrow \text{KCl} + \text{MnCl}_2 + 2\text{H}_2\text{O} + \text{Cl}_2</math></p> <p>O = 0</p>
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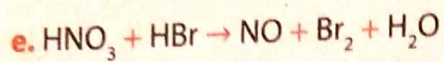
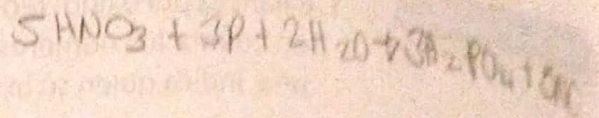
<p><b>Izquierda</b></p> <p>Na = 4x1 = 4</p> <p>Cl = 4x1 = 4</p> <p>Mn = 1x1 = 1</p> <p>O = 1x3 + 3x4 = 15</p> <p>H = 3x2 = 6</p> <p>S = 3x1 = 3</p>	<p><b>Derecha</b></p> <p>Na = 2x2</p> <p>Cl = 2x2</p> <p>Mn = 1x1</p> <p>O = 1x4 + 2x1 + 2x4 + 1x1 = 15</p> <p>H = 2x2 + 1x2 = 6</p> <p>S = 1x1 + 2x1 = 3</p>	<p><math>\text{MnO}_2 + 3\text{H}_2\text{SO}_4 + 4\text{NaCl} = 2\text{Cl}_2 + \text{MnSO}_4 + 2\text{H}_2\text{O} + \text{Na}_2\text{SO}_4 + \text{H}_2\text{O}</math></p> <p>O = 0</p>
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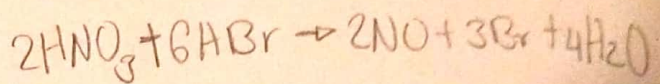
Izquierda Derecha

$$\begin{array}{l}
 \text{P} = 3 \times 1 = 3 \\
 \text{H} = 5 \times 1 + 2 \times 2 = 9 \\
 \text{N} = 5 \times 1 = 5 \\
 \text{O} = 5 \times 3 + 2 \times 1 = 17 \\
 \\
 3 \times 0 + 5 \times 0 + 2 \times 0 = 3 \times 0 + 5 \times 0 \\
 \text{O} = 0
 \end{array}$$

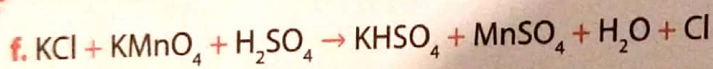


Izquierda Derecha

$$\begin{array}{l}
 \text{H} = 6 \times 1 + 2 \times 1 = 8 \\
 \text{Br} = 6 \times 1 = 6 \\
 \text{N} = 2 \times 1 = 2 \\
 \text{O} = 2 \times 3 = 6 \\
 \\
 6 \times 0 + 2 \times 0 = 3 \times 0 + 2 \times 0 + 4 \times 0 \\
 \text{O} = 0
 \end{array}$$

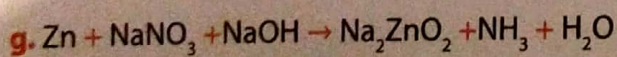
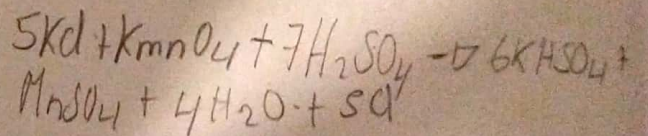


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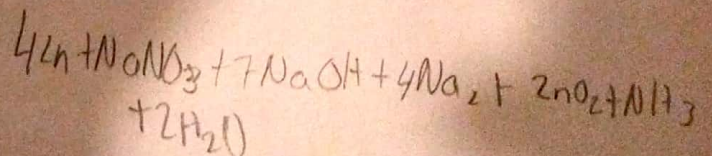
Izquierda Derecha

$$\begin{array}{l}
 \text{K} = 5 \times 1 + 1 \times 1 = 6 \\
 \text{Cl} = 5 \times 1 = 5 \\
 \text{Mn} = 1 \times 1 = 1 \\
 \text{O} = 1 \times 4 + 1 \times 4 = 8 \\
 \text{H} = 9 \times 2 = 18 \\
 \text{S} = 7 \times 1 = 7 \\
 \\
 \text{K} = 6 \times 1 = 6 \\
 \text{Cl} = 5 \times 1 = 5 \\
 \text{Mn} = 1 \times 1 = 1 \\
 \text{O} = 1 \times 4 + 6 \times 4 + 4 \times 1 = 32 \\
 \text{H} = 6 \times 1 + 4 \times 2 = 14 \\
 \text{S} = 1 \times 1 + 6 \times 1 = 7 \\
 \\
 5 \times 0 + 1 \times 0 + 7 \times 0 = 5 \times 0 + 1 \times 0 + 6 \times 0 \\
 + 4 \times 0 \quad \text{O} = 0
 \end{array}$$

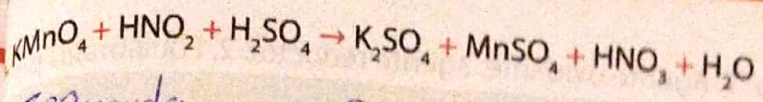


Izquierda Derecha

$$\begin{array}{l}
 \text{Zn} = 4 \times 1 = 4 \\
 \text{Na} = 1 \times 1 + 7 \times 1 = 8 \\
 \text{N} = 1 \times 1 = 1 \\
 \text{O} = 7 \times 3 + 7 \times 1 = 28 \\
 \text{H} = 7 \times 1 = 7 \\
 \\
 \text{Zn} = 4 \times 1 = 4 \\
 \text{Na} = 4 \times 2 = 8 \\
 \text{N} = 1 \times 1 = 1 \\
 \text{O} = 4 \times 2 + 2 \times 1 = 10 \\
 \text{H} = 1 \times 3 + 2 \times 2 = 7
 \end{array}$$





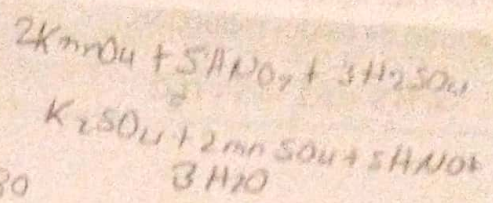


Izquierda

Derecha

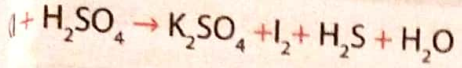
$$\begin{aligned} H &= 5 \times 1 + 3 \times 2 = 11 \\ N &= 5 \times 1 = 5 \\ O &= 5 \times 4 + 2 \times 1 + 3 \times 4 = 30 \\ K &= 2 \times 1 = 2 \\ Mn &= 2 \times 1 = 2 \\ S &= 3 \times 1 = 3 \end{aligned}$$

$$\begin{aligned} H &= 5 \times 1 + 3 \times 2 = 11 \\ N &= 5 \times 1 = 5 \\ O &= 5 \times 3 + 2 \times 4 + 1 \times 4 + 3 \times 1 = 30 \\ K &= 1 \times 2 = 2 \\ Mn &= 2 \times 1 = 2 \\ S &= 2 \times 1 + 1 \times 1 = 3 \end{aligned}$$



$$5 \times 0 + 2 \times 0 + 3 \times 0 = 5 \times 0 + 2 \times 0 + 1 \times 0 + 3 \times 0$$

O = 0

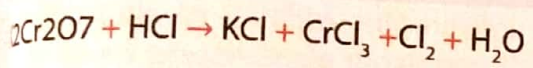
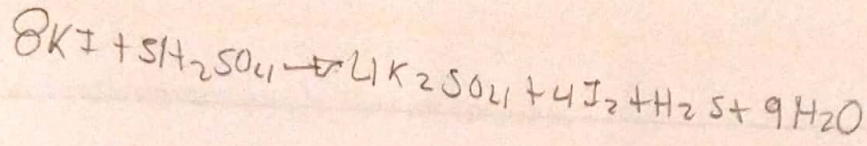


$$\begin{aligned} K &= 8 \times 1 = 8 \\ S &= 8 \times 1 = 8 \\ H &= 5 \times 2 = 10 \\ S &= 3 \times 1 = 3 \\ O &= 5 \times 4 = 20 \end{aligned}$$

$$\begin{aligned} K &= 4 \times 2 = 8 \\ I &= 4 \times 2 = 8 \\ H &= 7 \times 2 + 4 \times 2 = 10 \\ S &= 7 \times 1 + 4 \times 1 = 5 \\ O &= 4 \times 4 + 4 \times 1 = 20 \end{aligned}$$

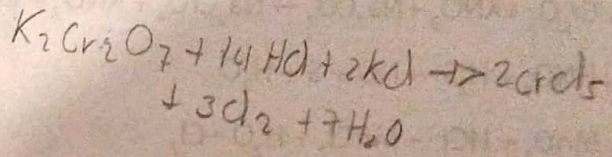
$$8 \times 0 + 5 \times 0 = 4 \times 0 + 1 \times 0 + 4 \times 0 + 4 \times 0$$

O = 0



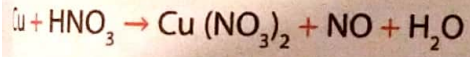
$$\begin{aligned} K &= 1 \times 2 = 2 \\ Cr &= 1 \times 2 = 2 \\ O &= 1 \times 7 = 7 \\ H &= 4 \times 1 = 4 \\ Cl &= 14 \times 1 = 14 \end{aligned}$$

$$\begin{aligned} K &= 2 \times 1 = 2 \\ Cr &= 2 \times 1 = 2 \\ O &= 7 \times 1 = 7 \\ H &= 7 \times 2 = 14 \\ Cl &= 3 \times 2 + 2 \times 3 + 2 \times 1 = 14 \end{aligned}$$



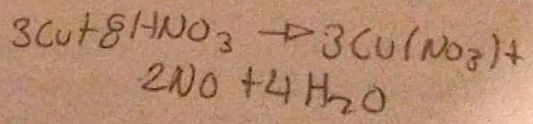
$$1 \times 0 + 14 \times 0 = 3 \times 0 + 2 \times 0 + 7 \times 0$$

O = 0



$$\begin{aligned} Cu &= 3 \times 1 = 3 \\ H &= 8 \times 1 = 8 \\ N &= 8 \times 1 = 8 \\ O &= 8 \times 3 = 24 \end{aligned}$$

$$\begin{aligned} Cu &= 3 \times 1 = 3 \\ H &= 4 \times 2 = 8 \\ N &= 3 \times 2 + 1 \times 1 = 8 \\ O &= 3 \times 6 + 2 \times 1 + 4 \times 1 = 24 \end{aligned}$$



$$3 \times 0 + 8 \times 0 = 3 \times 0 + 2 \times 0 + 4 \times 0$$

O = 0