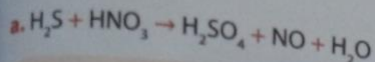




1. Balancea por óxido-reducción las siguientes ecuaciones químicas, teniendo en cuenta los números de oxidación y plantea semirreacciones para cada una, indica quien se oxida y quien se reduce.

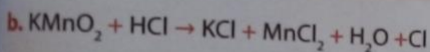
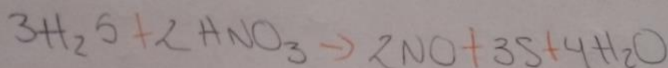


Izquierda

H = 3x2 + 2x1 = 8  
S = 3x1 = 3  
N = 2x1 = 2  
O = 2x3 = 6

Derecha

H = 4x2 = 8  
S = 3x1 = 3  
N = 2x1 = 2  
O = 2x1 + 4x1 = 6

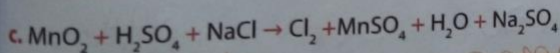
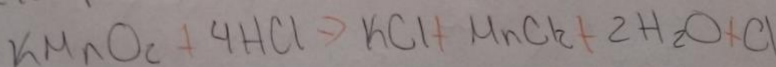


Izquierda

K = 1x1 = 1  
Mn = 1x1 = 1  
O = 1x2 = 2  
H = 4x1 = 4  
Cl = 4x1 = 4

Derecha

K = 1x1 = 1  
Mn = 1x1 = 1  
O = 2x1 = 2  
H = 2x2 = 4  
Cl = 1x1 + 1x2 + 1x1 = 4

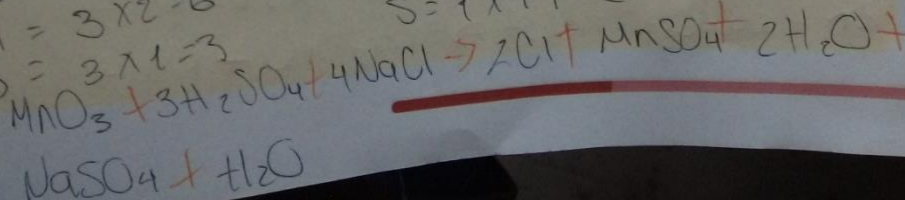


Izquierda

Na = 4x1 = 4  
Cl = 4x1 = 4  
Mn = 1x1 = 1  
O = 1x3 + 3x4 = 15  
H = 3x2 = 6  
S = 3x1 = 3

Derecha

Na = 2x2 = 4  
Cl = 2x2 = 4  
Mn = 1x1 = 1  
O = 1x4 + 2x1 + 2x4 + 1x1 = 15  
H = 2x2 + 2x2 = 6  
S = 1x1 + 2x1 = 3

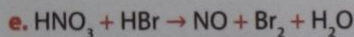
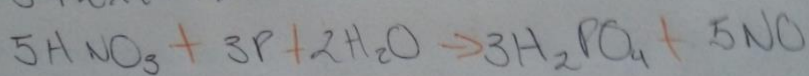


Izquierda

$$\begin{aligned}
 P &= 3 \times 1 = 3 \\
 H &= 5 \times 1 + 2 \times 2 = 9 \\
 N &= 5 \times 1 = 5 \\
 O &= 5 \times 3 + 2 \times 1 = 17
 \end{aligned}$$

Derecha

$$\begin{aligned}
 P &= 3 \times 1 = 3 \\
 H &= 3 \times 3 = 9 \\
 N &= 5 \times 1 = 5 \\
 O &= 3 \times 4 + 5 \times 1 = 17
 \end{aligned}$$

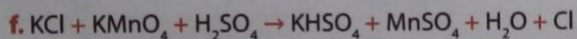
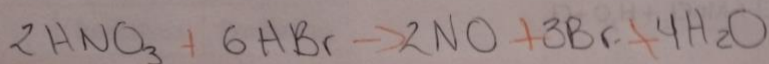


Izquierda

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

Derecha

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

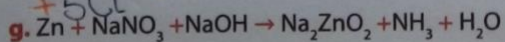
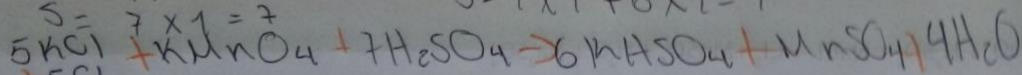


Izquierda

$$\begin{aligned}
 K &= 5 \times 1 + 1 \times 1 = 6 \\
 Cl &= 5 \times 1 = 5 \\
 Mn &= 1 \times 1 = 1 \\
 O &= 1 \times 4 + 7 \times 4 = 32 \\
 H &= 7 \times 2 = 14 \\
 S &= 7 \times 1 = 7
 \end{aligned}$$

Derecha

$$\begin{aligned}
 K &= 6 \times 1 = 6 \\
 Cl &= 5 \times 1 = 5 \\
 Mn &= 1 \times 1 = 1 \\
 O &= 1 \times 4 + 6 \times 4 + 4 \times 1 = 32 \\
 H &= 6 \times 2 + 4 \times 2 = 14 \\
 S &= 1 \times 1 + 6 \times 1 = 7
 \end{aligned}$$

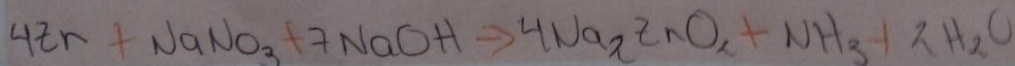


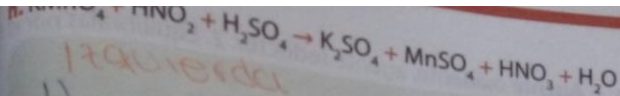
Izquierda

$$\begin{aligned}
 Zn &= 4 \times 1 = 4 \\
 Na &= 1 \times 1 + 7 \times 1 = 8 \\
 N &= 1 \times 1 = 1 \\
 O &= 1 \times 3 + 7 \times 1 = 10 \\
 H &= 7 \times 1 = 7
 \end{aligned}$$

Derecha

$$\begin{aligned}
 Zn &= 2 \times 2 = 4 \\
 Na &= 4 \times 2 = 8 \\
 N &= 1 \times 1 = 1 \\
 O &= 5 \times 2 = 10 \\
 H &= 1 \times 3 + 2 \times 2 = 7
 \end{aligned}$$



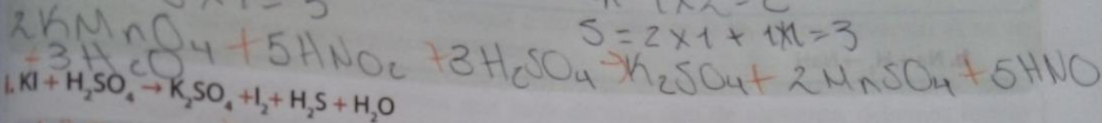


izquierda

$\text{H} = 5 \times 1 + 3 \times 1 = 8$   
 $\text{N} = 5 \times 1 = 5$   
 $\text{O} = 5 \times 2 + 2 \times 4 + 3 \times 4 = 30$   
 $\text{K} = 2 \times 1 = 2$   
 $\text{Mn} = 1 \times 2 = 2$   
 $\text{S} = 3 \times 1 = 3$

Derecha

$\text{H} = 5 \times 1 + 3 \times 2 = 11$   
 $\text{N} = 5 \times 1 = 5$   
 $\text{O} = 5 \times 6 = 30$   
 $\text{K} = 1 \times 1 + 1 \times 1 = 2$   
 $\text{Mn} = 1 \times 2 = 2$   
 $\text{S} = 2 \times 1 + 1 \times 1 = 3$

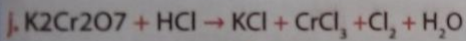
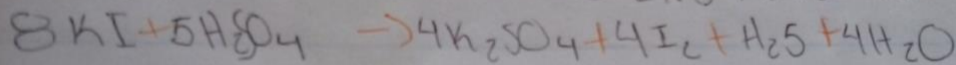


izquierda

$\text{K} = 4 \times 2 = 8$   
 $\text{I} = 2 \times 4 = 8$   
 $\text{H} = 5 \times 2 = 10$   
 $\text{S} = 5 \times 1 = 5$   
 $\text{O} = 5 \times 4 = 20$

Derecha

$\text{K} = 8 \times 1 = 8$   
 $\text{I} = 4 \times 2 = 8$   
 $\text{H} = 5 \times 1 + 5 \times 1 = 10$   
 $\text{S} = 4 \times 1 + 1 \times 1 = 5$   
 $\text{O} = 2 \times 5 + 6 \times 2 = 20$

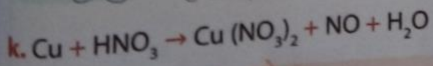
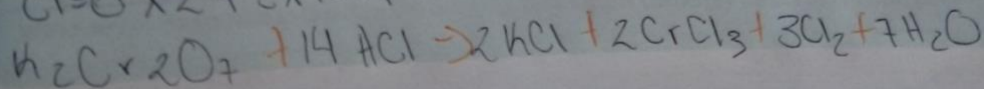


izquierda

$\text{K} = 1 \times 2 = 2$   
 $\text{Cr} = 2 \times 1 = 2$   
 $\text{O} = 1 \times 7 = 7$   
 $\text{H} = 14 \times 1 = 14$   
 $\text{Cl} = 6 \times 2 + 2 \times 1 = 14$

Derecha

$\text{K} = 1 \times 1 + 1 \times 1 = 2$   
 $\text{Cr} = 1 \times 2 = 2$   
 $\text{O} = 1 \times 6 + 1 \times 1 = 7$   
 $\text{H} = 7 \times 2 = 14$   
 $\text{Cl} = 14 \times 1 = 14$



izquierda

$\text{Cu} = 3 \times 1 = 3$   
 $\text{H} = 8 \times 1 = 8$   
 $\text{N} = 2 \times 4 = 8$   
 $\text{O} = 6 \times 3 = 18$

Derecha

$\text{Cu} = 3 \times 1 = 3$   
 $\text{H} = 8 \times 1 = 8$   
 $\text{N} = 3 \times 2 + 2 \times 1 = 8$   
 $\text{O} = 5 \times 4 + 2 \times 2 = 24$

