gridlocks – can you unlock the grid?

Oxidation number rules

In order to calculate oxidation numbers you need to learn the rules for assigning them. There are a couple general ones: the oxidation numbers of all the atoms in a molecule or ion add up to the overall charge on the molecule or ion and elements on their own have oxidation number zero. Then there are some rules used to assign oxidation numbers to predictable elements in compounds. Before you answer the gridlock below fill in the table of these rules using:

+1 except in metal hydrides **−2 except in peroxides and compounds with F** **+2**

element	rule
F	−1
O	
group 1 metals	+1
group 2 metals	
H	
Cl	−1 except in compound of F or O

Gridlock 1

Each row, column and 2 x 2 box contains information about F, O, group 1 and group 2. Use your problem solving skills and the answers in the table above to fill in the blank boxes.

element		rule	
O			
		+2	
		F	
	+1		

rule element

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Gridlock 2

Each row, column and 2 x 2 box contains information about F, O, H and Cl.

element		rule	
	F		−1 except compound of F or O
			−1 in a compound
−2 except in peroxides and compounds with F			H

rule	element

Gridlock 3

Each row, column and 2 x 2 box contains information about group 1 & 2, H and Cl.

element		rule	
Cl			+1 except in metal hydrides
			group 2 metals
+1			

rule	element