

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:

element	rule
F	-1
0	
group 1 metals	+1
group 2 metals	
Н	
Cl	-1 except in compound of F or O

Gridlock 1

Each row, column and 2×2 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.

eler	nent	ru	le
O			
		+2	
		F	
	+1		
ru	le	elen	nent





gridlocks - can you unlock the grid?

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			Н
ru	le	elen	nent

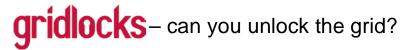
Gridlock 3

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

eler	nent	ru	ıle
CI			+1 except in metal hydrides
			group 2 metals
+1			
rı	ıle	eler	nent







Oxidation number rules - answers

element	rule	
F	-1	
0	−2 except in peroxides and compounds with F	
group 1 metals	+1	
group 2 metals	+2	
Н	+1 except in metal hydrides	
CI	-1 except in compound of F or O	

Gridlock 1 - answers

element		rule	
O	group 2 metals	+1	−1 in a compound
group 1 metals	F	+2	−2 except in peroxides and compounds with F
+2	−2 except in peroxides and compounds with F	F	group 1 metals
−1 in a compound	+1	0	group 2 metals
rule		eler	nent





gridlocks - can you unlock the grid?

Gridlock 2 - answers

element		rule	
н	F	−2 except in peroxides and compounds with F	-1 except compound of F or O
CI	0	+1 except in metal hydrides	−1 in a compound
-1 in a compound	+1 except in metal hydrides	CI	0
-2 except in peroxides and compounds with F	-1 except compound of F or O	F	Н
rule		elen	nent

Gridlock 3 - answers

element		rule	
CI	group 1 metals	+2	+1 except in metal hydrides
group 2 metals	Н	-1 except compound of F or O	+1
+1 except in metal hydrides	-1 except compound of F or O	group 1 metals	group 2 metals
+1	+2	H	CI
rule		elen	nent



