

Name: _____

Date: _____

Bonding Capacities of Elements

In order for you to name and determine the formula for compounds, you need to know the elements bonding capacity. This is the number of bonds the element commonly forms to become stable. It is known as the elements valence or oxidation number. These values are shown in the following table:

Valences or Common Oxidation Numbers of Main Group Elements

Group	IA	IIA	IIIA	IVA	VA	VIA	VIIA	VIIIA
oxidation #	1	2	3	± 4	-3	-2	-1	0

Oxidation numbers (O.N.) are the charges on an ion based on the number of electrons gained, lost or shared. The O.N. is negative if electrons are gained and positive if they are lost. The most common O.N.'s are listed here in this table but some elements have more than one possible O.N. All O.N.'s are given on the periodic table. It is positive unless a negative sign is placed in front of it.

ex. Mn has the following oxidation numbers: _____

Practice Exercise A:

Give all possible oxidation numbers or states for the following elements:

- oxygen
- nitrogen
- phosphorous
- carbon

- iron
- lead
- mercury
- copper

17	35.453
$\pm 1, 3, 5, 7$	
Cl.	
Chlorine	

The oxidation numbers for Cl are, $-1, +1, +3, +5, +7$