

Ionic Compounds

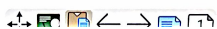
Formula $X_a Y_b$

X = metal (cation)

Y = nonmetal (anion)

a = # metal atoms (X)

b = # non-metal atoms (Y)



Jr

Ionic Formulas

Na Cl $[Na_1 Cl_1]$

Na = 1 Cl = 1

Al₂O₃ ← subscript

Al = 2 O = 3



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Ions in Ionic Compounds

The cation + anion
charges in an ionic
compound cancel out

$$a \cdot [+X] + b \cdot [-Y] = 0$$

a = # X atoms b = # Y atoms
+X = charge of X -Y = charge of Y



Jr

Ex: Na Cl $[X_a Y_b]$

Na = +1 a = 1 [1]

Cl = -1 b = 1 [1]

$$(1 \cdot +1) + (1 \cdot -1) = 0$$

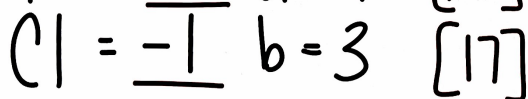
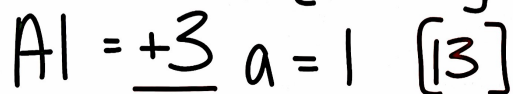
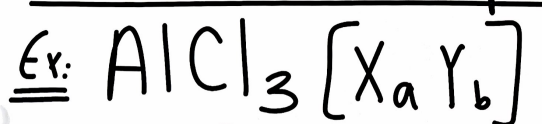
$$+1 + -1 = 0 \checkmark$$



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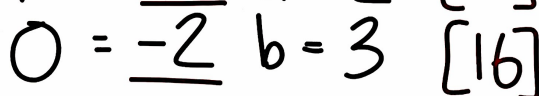
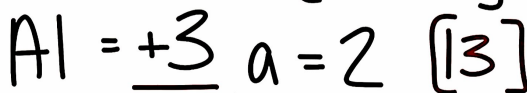
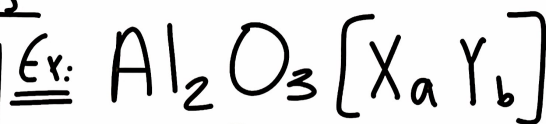
Ions in Ionic Compounds

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$[1 \cdot +3] + [3 \cdot -1] = 0$

$+3 + -3 = 0 \checkmark$



$[2 \cdot +3] + [3 \cdot -2] = 0$

$+6 + -6 = 0 \checkmark$

Finding Ionic Compound Formulas

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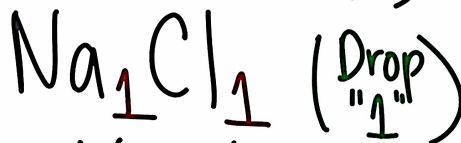
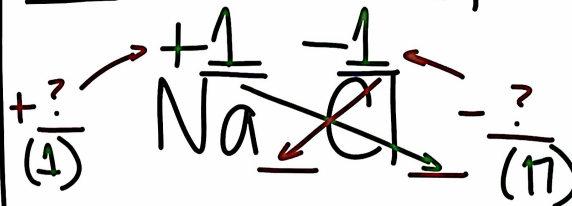
Cross Method

① Write Basic Formula
[X _ Y _]

② Write Charges

③ Bring down Charges (#)

④ Reduce subscripts (a and b)



Finding Ionic Compound Formulas

