

Name _____

Period _____

Deciphering Ionic Charges

The point of this exercise is to gain practice in determining the charge on an ion by interpreting the overall molecular formula. You can determine a charge on one ion by looking at what it is attached to. If you know the charge on one ion you can determine the charge on the other.

First some simple examples based on known ions. The charges of each of these ions is known already. You can use the periodic table and lists of polyatomic ions to determine them if you have not memorized them already.

1) What is the formula and charge on each of the ions in the following compounds:

a) NaCl positive ion _____ negative ion _____

b) CaCl₂ positive ion _____ negative ion _____

c) Ba(NO₃)₂ positive ion _____ negative ion _____

d) Cu(C₂H₃O₂)₂ positive ion _____ negative ion _____

e) K₂SO₄ positive ion _____ negative ion _____

f) ZnSO₃ positive ion _____ negative ion _____

g) Fe₃(PO₄)₂ positive ion _____ negative ion _____

h) FePO₄ positive ion _____ negative ion _____

Now on to some examples that contain some ions that do not exist. You will be able to determine their charges based on the other ions they are joined with. Question 2 deals with unknown cations. Question 3 deals with unknown anions.

2) What is the formula and charge on each of the ions in the following compounds:

a) XCO₃ positive ion _____ negative ion _____

b) ZNO_3 positive ion _____ negative ion _____

c) A_2SO_3 positive ion _____ negative ion _____

d) EPO_4 positive ion _____ negative ion _____

e) GC_2O_4 positive ion _____ negative ion _____

f) QCr_2O_7 positive ion _____ negative ion _____

g) $Z(SCN)_2$ positive ion _____ negative ion _____

h) $J(MnO_4)_3$ positive ion _____ negative ion _____

2) What is the formula and charge on each of the ions in the following compounds:

a) $Sr(LO_3)_2$ positive ion _____ negative ion _____

b) $BaMO_3$ positive ion _____ negative ion _____

c) Na_3RO_4 positive ion _____ negative ion _____

d) $Al_2(TO_3)_3$ positive ion _____ negative ion _____

e) KXO_2 positive ion _____ negative ion _____

f) BJO_3 positive ion _____ negative ion _____

g) $Ca_3(ZO_3)_2$ positive ion _____ negative ion _____

h) $Ga(AO_2)_3$ positive ion _____ negative ion _____