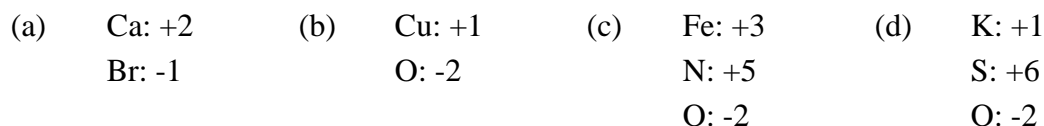


## Answers to Exercise 9.1 Assigning Oxidation States

1. *These polyatomic ions are simple enough that the high school rules for oxidation states can be applied: O is -2, H is +1 and the total must add up to the overall charge of the ion.*

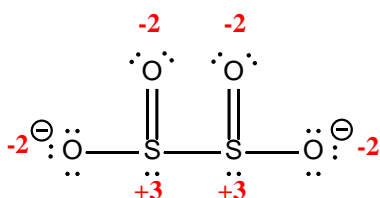


2. *First, split the ionic compound into cation and anion. Then find oxidation states for the atoms within each ion. Again, these species are simple enough that the high school rules for oxidation states can be applied.*

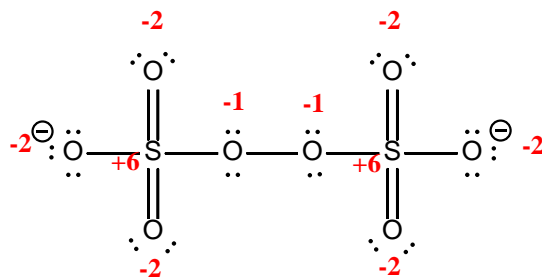


3. *To calculate oxidation states from Lewis diagrams, pretend that every bond is broken such that all bonding electrons go to the more electronegative atom (except when there are two atoms of the same element – in which case they are split evenly).*

(a) dithionite:  $S_2O_4^{2-}$ .



(b) peroxydisulfate:  $S_2O_8^{2-}$



(c) thiosulfate:  $S_2O_3^{2-}$

