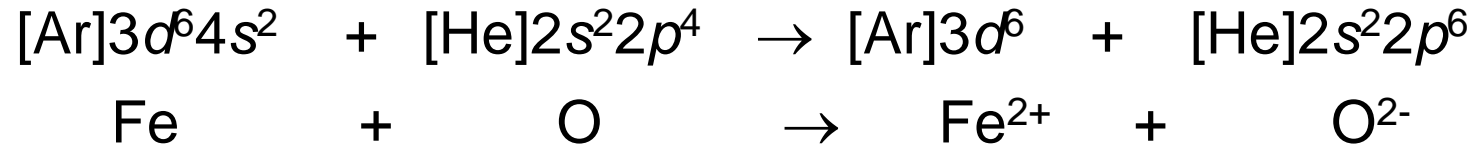
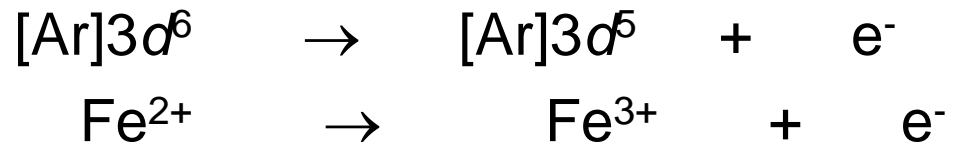


Transition metal ions

- All monoatomic anions have noble gas electron configurations, but not every monoatomic cation has a noble gas electron configuration.
- Most of the first transition metals form ions with a 2+ charge.



- The two electrons are removed from the 4s orbital before the 3d orbital because the ion with $[\text{Ar}]3d^6$ is of lower energy than $[\text{Ar}]4s^2 3d^4$.
- There is not very much difference between the 3d orbitals and the 4s orbitals. The third electron will be removed from the 3d orbitals.



Transition metal ions

- As a rule, the transition metals and the lanthanides form cations by losing the ns electrons before the $(n - 1)d$ or $(n - 2)f$ electrons, respectively, which is opposite to the order when the orbitals are filled.
- There is no simple rule for predicting which type of cation will be more common.
- A number of elements near the end of the transition series have filled d subshells.

For example $\text{Zn} \quad [\text{Ar}]3d^{10}4s^2$

$\text{Zn}^{2+} \quad [\text{Ar}]3d^{10}$

So Zn does not form a 3+ ion