

1. What is the cause of Lanthanide Contraction
2. Which element has a greater atomic radius Gd or Tb and why?
3. Which element has a smaller atomic radius Dy or Yb and why?
4. Why do elements in Rows 2 and 3 that are in the same column have similar atomic radii?
5. Place the following elements in order of increasing atomic radius: Eu, Ce, Pr, Ho.
6. Which one of the following has the lowest density: Tb, Pm, Er, Tm, Ce

Answers:

1. The Lanthanide Contraction is caused by a poor shielding effect of the 4f electrons.
2. Gd because as atomic number increases, the atomic radius decreases.
3. Yb because it has a larger atomic number.
4. Because the elements in Row 3 have 4f electrons. These electrons do not shield good, causing a greater nuclear charge. This greater nuclear charge has a greater pull on the electrons.
5. Ho, Eu, Pr, Ce

5. Ho, Eu, Pr, Ce

6. Ce

