

Unit Cells

1. A body centered cubic unit cell contains how many atoms? How many atoms in a primitive cubic cell? How many atoms in a body-centered cubic cell?
2. An unknown metal crystallizes in a face-centered cubic arrangement with an edge length of 351 pm. The density of the unknown metal is 6.83 g/cm³. What is the radius and atomic mass? Identify the metal.
3. Sodium crystallizes into a body-centered cubic unit cell. The density of sodium is 0.972 g/cm³. What is the edge length of the unit cell? What is the radius of a sodium atom? Provide the answers in pm.
4. Barium metal has a density of 3.62 g/cm³. It crystallizes in a cubic unit cell with an edge length of 502 pm. How many Ba atoms are in the unit cell? Which type of unit cell does Ba crystallize in?