1. What are the Miller indices of the close-packed direction in a BCC crystal?

2. In a cube of edge length a, what is the length of the body diagonal?

3. What is the analytical relationship between the edge length and atomic radius for a BCC unit cell?

4. How many atoms per unit cell in a BCC crystal?

5. Calculate the volume per atom in a unit cell for BCC iron ($r = 0.124$ nm). Report the value in cm^3/atom/unit cell.

1. [111]
2. $a\sqrt{3}$
3. $a = 4r/\sqrt{3}$
4. 2
5. 1.175×10^{-23} cm^3/atom/unit cell