HW2-2 Soln)

SC has an eighth sphere at each corner of the cube for a total of one sphere. The length of an edge is two radiuses. So,

$$L = 2R \quad \rightarrow \quad R = \frac{L}{2} \ .$$

$$PF_{BCC} = \frac{\frac{4\pi}{3}R^3}{L^3} = \frac{4\pi}{3}\frac{\left(\frac{L}{2}\right)^3}{L^3} = \frac{4\pi}{3(8)} = 0.52 \quad .$$