PHYS 101H Body-centered cubic crystal structure Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



1. How many atoms are inside the cubic unit cell of BCC?

2. Show the cube edge length, *a* and the atomic radius, *R* in
the figure.

3. Show that the cube edge length, *a* and the atomic radius, *R* are
related by: $ a=\frac{4}{\sqrt{3}}R$

4. Calculate the density of iron, Fe, which has a BCC crystal structure. Its atomic radius = 0.126 nm and atomic weight = 55.845 g/mol. (Avagadro’s number = 6.022 x 1023) [<http://www.ptable.com/>]