

7.6 (a) For the FCC crystal structure, the planar density for the (110) plane is given in Equation 3.11 as

$$PD_{110}(\text{FCC}) = \frac{1}{4R^2\sqrt{2}} = \frac{0.177}{R^2}$$

Furthermore, the planar densities of the (100) and (111) planes are calculated in Homework Problem 3.53, which are as follows:

$$PD_{100}(\text{FCC}) = \frac{1}{4R^2} = \frac{0.25}{R^2}$$

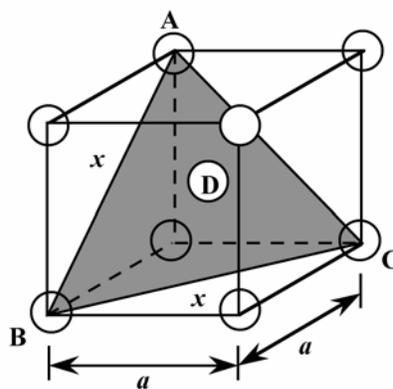
$$PD_{111}(\text{FCC}) = \frac{1}{2R^2\sqrt{3}} = \frac{0.29}{R^2}$$

(b) For the BCC crystal structure, the planar densities of the (100) and (110) planes were determined in Homework Problem 3.54, which are as follows:

$$PD_{100}(\text{BCC}) = \frac{3}{16R^2} = \frac{0.19}{R^2}$$

$$PD_{110}(\text{BCC}) = \frac{3}{8R^2\sqrt{2}} = \frac{0.27}{R^2}$$

Below is a BCC unit cell, within which is shown a (111) plane.



(a)