HW #2

Physics 406

(due 02/11/13)

Reading

Omar (O) Chapter 2

Handout 3 on ellipsoid packing

(1.-4.) O. Ch. 2 Q. 1, 5, 7, 9
↑ question

(5.) O. Ch. 2 Pr. 1
↑ problem

(6.) O. Ch. 2 Pr. 2

(7.) O. Ch. 2 Pr. 3

(8.) Consider a plane w/ Miller indices (hkl) in a crystal lattice.

a) Prove that the reciprocal lattice vector $\vec{G} = h\vec{a}_1 + k\vec{a}_2 + l\vec{a}_3$ is $\perp$ to this plane.

b) Prove that the distance between 2 adjacent $\parallel$ planes of the lattice is

$$d_{hkl} = \frac{2\pi}{|\vec{G}|}.$$

c) Show that for a sc lattice

$$d_{hkl}^2 = \frac{a^2}{h^2+k^2+l^2}$$

(9.) Please summarize using ≥ 4 sentences the key findings reported in Handout 3 (ellipsoid packing)