

**Math 461 Geometry I**  
**Fall 2013 Prof. Hajir**  
**Homework 3**

*I. Readings:* Read Chapters 3 and 4 of Lee.

*II. Problems From the Book:*

From Chapter 3 of Lee: do problems 3B, 3C, 3E, 3F, 3G, 3J.

*III. Problems Not From the Book:*

3Z. Suppose  $\ell$  is a line and  $f$  is a coordinate function on it. Consider a function  $g=af+b$  defined by  $g(A) = a f(A)+b$ , where  $a$  and  $b$  are real numbers. Show that  $g$  is a coordinate function for  $\ell$  if and only if  $a$  is either 1 or -1. Pay attention to what properties of the set of real numbers you use in your proof (you may want to consult Appendix H of the book for this).