Honors 213 Spring 2009 Homework 03

Due February 13

Name

Remember, you are not to discuss these problems with anyone with three exceptions: (1) discussions with me are allowed, (2) you may use any information that comes to light during a Wednesday Brainstorming session and (3) if the directions to the problem specifies you may work with others.

"*It is by logic that we prove but by intuition that we discover.*" (Henri Poincaré)

Undefined terms: point, line, incident

Incidence Axiom 1

For every point P and for every point Q not equal to P there exists a unique line l incident with P and Q.

Incidence Axiom 2

For every line l there exist at least two distinct points incident with l.

Incidence Axiom 3.

There exist three distinct points with the property that no line is incident with all three of them.

Propositions

Proposition 1 (2.1) *(Not Assigned) If l and m are distinct lines that are not parallel, then l and m have a unique point in common*

Proposition 2 (2.2) *There exist three distinct lines that are not concurrent.*

Proposition 3 (2.3) *For every line there is at least one point not lying on it.*

Proposition 4 (2.4) *For every point there is at least one line not passing through it.*

Proposition 5 (2.5) *For every point P there exist at least two lines through P.*

Proposition 6 (2.6) *For every point P there are at least two distinct points neither of which is P.*

Proposition 7 (2.7) *For every line l there are at least two distinct lines neither of which is l.*

Proposition 8 (2.8) *If l is a line and P is a point not incident with l then there is a one-to-one correspondence between the set of points incident with l and the set of lines through P that meet l.*

Proposition 9 (2.9) *For any model of incidence geometry, let P be a point. Denote the set of points $\{X : X$ is on a line passing through $P\}$ by S. Then every point in the model is in S.*

Proposition 10 (2.10) *For any model of incidencce geometry, let l be a line. Denote the set of lines $\{m : m$ is incident with a point that lies on l or m is parallel to $l\}$ by L. Then L contains every line.*

Homework

Everyone Know the answers to the Review Exercise Questions in Chapter 1 and Chapter 2.

Everyone Be able to discuss Exercise 19

Everyone Exercise 3, Exercise 7

Janet Proposition 2.2, Exercise 9.*c*

Yujung Proposition 2.3, Exercise 9.*a*

Ann Proposition 2.7, Exercise 9.*b*

Justin Proposition 2.6, Exercise 9.*c*

Nancy Proposition 2.5, Exercise 9.*d*

Sean Proposition 2.4, Exercise 9.*a*

Brianna Proposition 2.3, Exercise 9.*b*

Megan Proposition 2.6, Exercise 9.*c*

Gerardo Proposition 2.7, Exercise 9.*d*