

Math 108- Second Assignment
Due September 13, 2006

1. Write the negations of each of these statements
 - (a) I always take sugar in my coffee
 - (b) Some Whitman students have no class on Friday.
 - (c) For every x , there is a y such that $\frac{x}{y} = 1$.
2. In the Problem Solving book, write up and turn in Exercises 2.12 and 2.23
3. Prove the statement “At least two people at Whitman have the same number of friends at Whitman” by first negating the statement, and then showing that negation to be false.
4. Following the Party Example in class: Suppose that there are 17 people at a party. There are 3 ‘relations’ between the party-goers: Either two people do not know each other, they know each other casually, or they know each other well. Show that there must be a set of three people that have the same ‘relation’ type with each other. (Hint: Start as we did in class by isolating one individual, and argue that they must have the same relation type with at least 6 participants. Then use the result on the 6 people at the party from class).
5. Give brief solutions to exercises 6, 8, and 11 on page 46 of The Heart of Mathematics, and tie together any common themes that you detect within the problems.
6. (Bonus) What is the smallest number not describable in less than eleven words? (For example, the number 185 requires three words, ‘One Hundred Eighty-Five’).