***Pretest Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Number Theory and Internet Security***

1. Ben and Jerry are soccer coaches. Ben has 385 in his age group, and Jerry has 294 in his age group. Each coach is able to divide his girls into the same size groups with no girls left over. Find the size of a group that would include the most girls.

 

1. You purchase a can of floor paint from Home Depot that will cover 200 square feet. You wish to paint a square in your basement for a workout area. Without a calculator, find the dimensions of the square to the nearest inch.

 

1. Suppose you win the super-duper power lottery and you take home $\$2^{10}. $You will divide it among your 13 friends and keep whatever is left over.

 

1. Suppose Andy asks his employee, Barney, to send him the last two digits of his social security number. Their shared key is 5. Using the “exclusive or” operation, Barney’s encrypted message is:

 1 0 0 0 0 1

What are the last two digits Barney’s social security number?

