Math 311
Project 5 Handout
Due: Monday, November 23rd by 4:00pm

Instructions: This project is designed to give you an opportunity to explore some of the concepts from class in a little more depth. You may work with at most one other student on this assignment. If you decide to work with another student, you may turn in a combined paper with both your names listed.

1. (5 points) Suppose that a fast food restaurant sells chicken nuggets in packs of 4, 7, or 9. What is the largest number of chicken nuggets that you **cannot** buy *exactly*? Justify your answer. Then describe the set of natural numbers correspond to an exact number of chicken nuggets that you can buy from this establishemnt.

2. (5 points) Suppose that a different restaurant sells chicken nuggets in packs of 4 or 15. What is the largest number of chicken nuggets that you **cannot** buy *exactly*? Justify your answer. Then describe the set of natural numbers correspond to an exact number of chicken nuggets that you can buy from this establishemnt.

3. (3 points) Suppose that a different restaurant sells chicken nuggets in packs of 6, or 9. Is there a largest number of chicken nuggets that you **cannot** buy *exactly*? Justify your answer.

Extra Credit: Given a restaurant that sells chicken nuggets in packs of size $n_1, n_2, ..., n_k$, what needs to be true about $n_1, n_2, ..., n_k$ in order for there to be a largest number of chicken nuggets that you cannot buy exactly?