Problem Set 7.5 **Foundations** **Due 3/21/23**

FOR PRACTICE AND FEEDBACK ONLY. None of these problems will be graded. Clear and complete justification is required for full credit. You are welcome to discuss these problems with anyone and everyone, but you must write up your own final submission without reference to any sources other than the textbook and instructor.

1. Let A be the set of natural numbers that are throddodd. Construct a function $f : \mathbb{N} \to A$ that is bijective. Be sure to prove that your function f is injective and surjective.

2. Let A be the set of natural numbers that are throddodd. Find an inverse function $g : A \to \mathbb{N}$ that is bijective, i.e., prove that g is an inverse for f in problem #1 and that g is injective and surjective.

3. Let A be the set of natural numbers that are throddodd. Prove that A is denumerable/countable.

4. Let B be the set of natural numbers that are greater than 7. Construct a function $f : \mathbb{N} \to B$ that is bijective. Be sure to prove that your function f is injective and surjective.

5. Let B be the set of natural numbers that are greater than 7. Find an inverse function $g : B \to \mathbb{N}$ that is bijective, i.e., prove that g is an inverse for f in problem #4 and that g is injective and surjective.

6. Let B be the set of natural numbers that are greater than 7. Prove that B is denumerable/countable.