SC/MATH 1019B - HOMEWORK 2
DUE OCTOBER 23, 2018

Solutions to the problems below must be brought to class on October,23 2018. Solutions may by typed or neatly hand written. You must clearly indicate which problem you are solving. All solutions must be fully justified.

 # 1.
    (a) Given an example of a function $f : \mathbb{N} \to \mathbb{N}$ which is injective but not surjective.
    (a) Given an example of a function $g : \mathbb{N} \to \mathbb{N}$ which is surjective but not injective.

 # 2. Let A, B, and C be nonempty sets. Let $f : A \to B$ and $g : B \to C$ be functions. Show that if $g \circ f$ is one-to-one, then f must be one-to-one. Is it true that g must also be one-to-one?

 # 3. Solve the recurrence relation given by $a_1 = 2$ and $a_n = 2na_{n-1}$ for $n > 1$.