CSC/MAT-220: Discrete Structures
EFY 10

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Due: October 30, 2017

One-to-One and Onto Let A be any non-empty set and let S be a non-empty subset of A. Define the function $f\colon A \to \{0,1\}$ by $f(x) = 1$ if $x \in S$ and $f(x) = 0$ if $x \notin S$. Under what conditions is

i. f one-to-one?

ii. f onto?

iii. f bijective?

Function images of sets Let $f\colon \mathbb{R} \to \mathbb{R}$ be defined by $f(x) = x^2$. Find $f^{-1}(T)$ for each of the following

i. $T = \{9\}$

ii. $T = [4, 9]$

iii. $T = [-4, 9]$