

MATH 4440/5440: Fall 2017
First part of Homework 1, due Sept. 6

1) Let A, B, C be sets, and $f : A \rightarrow B$ and $g : B \rightarrow C$ be one-to-one functions. Show that the composite function $g \circ f : A \rightarrow C$ is one-to-one.

2) Let $e_1 : A \rightarrow B$, and $e_2 : B \rightarrow C$ be encryption functions, with corresponding decryption functions d_1 and d_2 . Show that $e_2 \circ e_1$ is an encryption function, and state (with an explanation) what its decryption function is.