

Math 3210-3

HW 5

Due Friday, September 7, 2007

This assignment is worth 3 points.

Functions

1. ♣ Suppose that $f : A \rightarrow B$, $g : B \rightarrow C$, and $h : C \rightarrow D$. Prove that $h \circ (g \circ f) = (h \circ g) \circ f$.
2. Find an example of functions $f : A \rightarrow B$ and $g : B \rightarrow C$ such that f and $g \circ f$ are both injective but g is not injective.
3. ♣ Suppose that $g : A \rightarrow C$ and $h : B \rightarrow C$. Prove that if h is bijective then there exists a function $f : A \rightarrow B$ such that $g = h \circ f$. Hint: Draw a picture.