

**CAAP Math, Mr. Church, Homework 2 (updated)**

Due at the beginning of class on Wednesday, July 9

<http://www.math.uchicago.edu/~tchurch/>

1. Let the function  $f: \mathbb{R} \rightarrow \mathbb{R}$  be defined by  $f(x) = x - 7$ ;  $g: \mathbb{R} \rightarrow \mathbb{R}$  by  $g(x) = x^2$ , and  $h: \mathbb{R} \setminus \{0\} \rightarrow \mathbb{R}$  by  $h(x) = \frac{1}{x}$ .
  - (a) What is  $f \circ g$ ? What is  $g \circ f$ ?
  - (b) What is  $f \circ h$ ? What is  $h \circ f$ ?
  - (c) In each case, what are the restrictions on the domain that are necessary? For example, is  $f \circ h$  defined on all of  $\mathbb{R}$ ? or some smaller subset?