Quiz #4

Monday, October 9 2017

Duration: 20 min

NAME: _____

Please write clearly and properly. Justify your answers carefully.

Problem	Grade
1	
2	
3	
Total	

Problem 1 (~ 3 points)**.**

A monoid $(S, *)$ is called a *group* when every element of S has an inverse. Give an example of a group. Give an example of a monoid which is not a group. *Don't forget to explain your answers!*

Problem 2 (~ 3 points)**.**

Let $(S, *)$ be a monoid. Show that the set of elements of S which have an inverse is closed.

Problem 3 (~ 3 points).

Let $S = \{1, 2, 3\}$ and let $(S^S, \circ)$ denote the set of all functions $S \to S$, equipped with the binary operation $\circ$ (composition of functions). Consider the function

$$f : S \to S$$
$$1 \mapsto 3$$
$$2 \mapsto 1$$
$$3 \mapsto 2$$

Does f admit an inverse?