

Quiz 9

MGF 3301 Intro. to Adv. Math

Student's Name: _____

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This is a 30 minute quiz. Discuss the problems in your group, and then write down your own answer.

1. Let $A = \{a, b, c\}$. For the following, find examples of functions $f : A \rightarrow A$ and $g : A \rightarrow A$ satisfying the statement, or prove that such examples do not exist.

(a) f is one-to-one, g is not one-to-one, and $g \circ f$ is one-to-one.

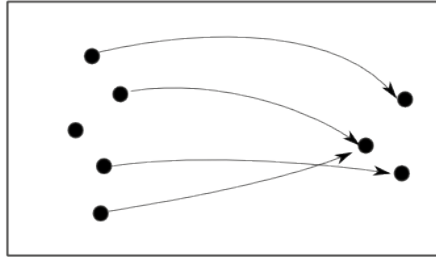
(b) f is onto, g is not onto, and $g \circ f$ is onto.

2. Consider the pictures on the reverse side of this sheet, and indicate whether the relation is a function, and if so whether it is one-to-one or onto.

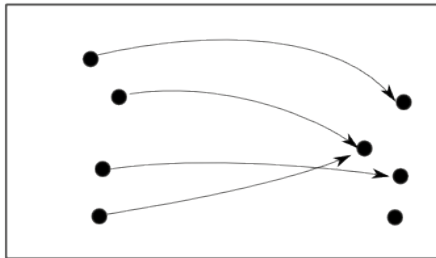
For which functions in this problem can you find a further map g so that $g \circ f$ is onto?

What about one-to-one?

a)



b)



c)

