Practice with Functions

MATH 135: First Steps into Advanced Mathematics
February 23, 2017 Name (Print): _____

1. (a) In the boxes below, draw diagrams for ALL of the functions with domain $\{a, b, c\}$ and target space (also known as the codomain) $\{1, 2\}$. (You may or may not need all of the boxes.) See Figure 3.1 on page 59 of the text for an example.

a 1 b 2 c	a 1 b 2 c	a 1 b 2 c
a 1 b 2 c	a 1 b 2 c	a 1 b 2 c
a 1 b 2 c	a 1 b 2 c	a 1 b 2 c

(b) In the box with each function give its range.

(c) Mark those functions which are surjective (also known as onto) functions.

(d) Mark those functions which are injective (also known as one-to-one) functions.

2. (a) In the boxes below, draw diagrams for ALL of the functions with domain $\{a, b\}$ and target space (also known as the codomain) $\{1, 2, 3\}$. (You may or may not need all of the boxes.) See Figure 3.1 on page 59 of the text for an example.

a, b, 1, 2, 3	a, b, 1, 2, 3	a, b, 1, 2, 3
a, b, 1, 2, 3	a, b, 1, 2, 3	a, b, 1, 2, 3
a, b, 1, 2, 3	a, b, 1, 2, 3	a, b, 1, 2, 3

(b) In the box with each function give its range.

(c) Mark those functions which are surjective (also known as onto) functions.

(d) Mark those functions which are injective (also known as one-to-one) functions.