CISP 440

Austin Smothers

Homework 9

1. Is a function[Each value in the domain is used once]

**Domain:** X = {1, 2, 3, 4} **Range:** Y = {b}

1 a

2 b

3 c Function is neither 1 – 1 nor onto

4 d

1. F(x) is not one-to-one, as negative x values can generate the same y value as positive x values.

X is not onto Y, as F(x) is always less than or equal to 1

1. F(x) = [2x] G(x) = x2

**F(F(x)) = 2(2x) = [4x] G(G(x)) = (x2)2 = x4**

**F(G(x)) = [2(x2)] = [2x2] G(F(x)) = [2x]2 = [4x2]**

1. There are 15 possible functions from {1,2} into {a,b}

{1a}, {1b}, {2a}, {2b}, **{1a, 1b}, {2a, 2b},** {1a, 2a}, {1b, 2b}, ***{1b, 2a}, {1a, 2b}*, {1a, 1b, 2a}, {1a, 1b, 2b}, {2a, 2b, 1a}, {2a, 2b, 1b}, {1a, 1b, 2a, 2b}**

Of those, *2 are one-to-one* & **9 are onto Y**