CS2305.501

Fall 2015

Homework 4

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2.3.70

Function g maps from X to Y premise

Function f maps from Y to Z premise

visual of comp

The inverse of f maps Z to Y definition inverse

The inverse of g maps Y to X definition inverse

visual of inverse

(f o g)(x) = z

If and only if some g(x) produces a y, g(x) = y

And f of that y produces a z, f(y) = z

Above only true iff visual of inverse

And visual of inverse

Both lines together

Therefore

2.3.74 (a,b)

1. True

The ceiling function alone ( right side) will always return an integer, since this value will always be an integer, applying the floor function to an integer never changes the value

1. False

Floor ( x + y ) = Floor (x) + Floor (y)

Floor (3.5 + 3.6) = Floor (3.5) + Floor (3.6)

Floor (7.1) = 3 + 3

7 = 6

Not true

3.2.4

X = 3, k=3, c=1

3.2.8 (a,b,c,d)

(X^3)logx dominates left side

(X^3) < (X^3)logx < (X^4), so n=4

N=4

3(X^5) dominates left side

with a bigger constant C, n can be the same on both sides

left side always smaller than 2

left side always smaller than 1

3.2.22

3.2.26