CSCI 334:
Principles of Programming Languages

Lecture 8: Computability

Instructor: Dan Barowy Williams Topics

More lambda reductions

Function graphs

Your to-dos

- 1. Lab 4, due Sunday 10/9 (partner lab)
- 2. Review quiz solutions if you haven't already...

## Announcements

- •Field trip to WCMA, Tuesday, Oct 18.
- Midterm exam, in class, Thursday, Nov 3.
- •Colloquium: What I Did Last Summer (Industry), 2:35pm in Wege Auditorium with cookies.



Mountain Day, whenever that is...

•No office hours (faculty "retreat")







Activity

Normal order reduction:

 $(\lambda f.\lambda x.f(f x))(\lambda z.(+ x z))2$ 

Activity

Applicative order reduction:

 $(\lambda f.\lambda x.f(f x))(\lambda z.(+ x z))2$ 







The graph of a function f(x) = x + 5  $\{<x, x+5> | x \in \mathbb{Z}\}$   $\{<x, x+5> | x \text{ is an integer}\}$ The graph is not a picture!



Activity

## Recap & Next Class

## Today:

More lambda reductions Function graphs

## Next class:

Halting problem