Composition of Functions
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1 Administrivia

Announcements

Exam on Friday. Thursday’s quiz will be questions. Exam will cover 2.1–4,8.

Assignment

For Monday read 2.12. Online quiz.

From Last Time

Combinations of transformations.

2 Introduction

- You want to calculate the area of circles, using diameter measurements. Radius: $f(x) = \frac{d}{2}$. Area: $g(x) = \pi r^2$. Rather than perform separate calculations we combine them:

$$g(f(x)) = \pi \left(\frac{d}{2}\right)^2 = \frac{\pi}{4}d^2$$

This is the composition of $g$ with $f$, written $g \circ f$. 
• If \( f(x) = 1/x \) and \( g(x) = 1/x^2 \), find \( f \circ g \), \( g \circ f \), and their domains. (Domain is not \( \mathbb{R} \).)

• If \( f(x) = 1/(x - 3) \) and \( g(x) = \sqrt{5-x} \), find \( f \circ g \), \( g \circ f \), and their domains.

2.1 Class Exercise

Pg. 115: 1 b–e; 2 a, b.