Reminders

- Classes do not meet on Friday, March 30.
- The second exam takes place on April 11 (Wednesday).

Example related to Exercise 6.1.3

A metric on the space of continuous functions $[0,1] \to \mathbb{R}$ is

$$d(f,g) = \max\{|f(x) - g(x)| : 0 \leq x \leq 1\}.$$

What about a metric on the space of continuous functions $\mathbb{R} \to \mathbb{R}$? One way to build such a metric is first to define

$$d_n(f,g) = \max\{|f(x) - g(x)| : -n \leq x \leq n\}$$

and then

$$d(f,g) = \sum_{n=1}^{\infty} \frac{d_n(f,g)}{1 + d_n(f,g)} \cdot \frac{1}{2^n}.$$

Isometries

What are the isometries of $(\mathbb{R}, \text{Euclidean metric})$?

How about $(\mathbb{R}^2, \text{Euclidean metric})$?

And $(\mathbb{R}^2, \text{maximum metric})$?

Assignment due next class

Read section 6.2 in the textbook.