1 Administrivia

Announcements

Exam I on Friday:

1. Covers Chapter 1.

2. May bring one page of notes to exam. Turn-in notes with exam.

3. May use calculators. Will have to show work, however.

4. Review Thursday will be driven by Thursday’s online quiz. Rationale.

Assignment

Read 2.2. Online quiz.


From Last Time

Linear models as predictors.
2 Introduction

Important terminology:

1. Use models to predict. Use independent variable to predict dependent variable: cricket chirps relates to temperature. *Isn’t that backwards?* What does that say about the nature of the relationship between the variables? (One-to-one.)

2. Relation: Set of pairs of values \((x, y)\) — (number, cost) for widgets.

3. Function: Set of pairs of values such that there’s only one or zero \(y\) values for a given \(x\) value. (Vertical line test.)

   Widget price relation *may not* be a function.

   Use functions to model — we can do things with them mathematically, don’t need to carry all the points along.

   Ways of representing a function: set of points, graph, equation. Which is best and when?

4. Continuous, dis-continuous graph.

5. Input/output. The following all mean the same:

   \[
   \begin{align*}
   y &= x^2 + 1 \\
   f(x) &= x^2 + 1 \\
   f : x &\rightarrow x^2 + 1
   \end{align*}
   \]

   They all show the relationship between the pairs of values: \((x, x^2 + 1)\).

2.1 Example

Shows input/output aspect of functions.

If \(f(x) = x^2 + x\), write and simplify an expression for each of the following:

1. \(f(x + 1)\)
2. \(f\left(\frac{1}{x}\right)\)
3. $2f(x) - 3$

2.2 Class Practice

Pg. 58: 1 a–e. Pg. 60: 4.