Week 7 Lecture 2

October 11, 2017

- **Stretch 42 (Pg. 103):**

  - **Solution:** Guess and check: Just start making guesses and modify as you go along. A bit of thought leads you to conclude that the lower numbers will be more prevalent and the higher numbers less so. Thus, start with the higher numbers at 1 occurrence and after a few iterations you will arrive at: "In this sentence, the number of occurrences of 0 is 1, of 1 is 7, of 2 is 3, of 3 is 2, of 4 is 1, of 5 is 1, of 6 is 1, of 7 is 2, of 8 is 1, of 9 is 1."

  - Another solution is : "In this sentence, the number of occurrences of 0 is 1, of 1 is 11, of 2 is 2, of 3 is 1, of 4 is 1, of 5 is 1, of 6 is 1, of 7 is 1, of 8 is 1, of 9 is 1."

- **Stretch 57:**

  - **Solution:** Three ages must multiply out to 72, and the sum is the street number of the building. Make a table of ways to factor 72:

#1	#2	#3	Sum
72	1	1	74
36	2	2	39
24	3	1	28
18	4	1	23
12	6	1	19
9	8	1	18
18	2	2	22
12	3	2	17
9	4	2	15
6	6	2	14
8	3	3	14
6	4	3	13

  - All of these sums are unique except 14, which appears twice. Thus, the answer can't be determined yet. Then she mentions the oldest boy, implying that he does not share an age with any other sibling. This eliminates $2 \cdot 6 \cdot 6$ leaving only $3 \cdot 3 \cdot 8$, so these are the ages.

- **Ch. 6: Stir It Up**

– **Homework: Faculty Debts (Pg. 60)**
  * Start in-class.
  * Begin by doing the same thing we did in Stretch 57.
    · **Take clues in the order that they appear..**
    · List the number of ways 4 debts add to \$12. Keep track of their products.