A Quick Review: Equations

Solving equations is straightforward, provided you know the equation to solve.

1. What is 5/6 + 1/4?

2. Given the equation: $y = mx + b$
   - Let $m = 2, b = -3, x = 4$
   - What is the value of y?

Real Problems

Real problems don't tell you the equation.

- My kids are selling candy lately. Evan (10) wants to give Corrie (7) a quarter for each dollar they earn. They get home from their latest selling run and split up the money they made. I want to make sure that Evan is being fair with his little sister. If Evan's share of the money was $5.25, how much should Corrie have?

- Pay attention to process! What's the data? What steps did you take to solve this problem? What equations did you use?

Computational Thinking

- Computers process data (that's why they're called computers)
  - Data is any piece of information
    - E.g. Your name, your phone number, your credit score
  - Often generating new data using equations

- Example:
  - Data: number of cookies, number of people
  - Process to find out how much everyone gets:
    1. Count the number of cookies
    2. Count the number of people
    3. Cookies per person = number of cookies / number of people

Computational Thinking

- To instruct the computer, you have to think in it's terms (*computational thinking)*
  - Identify data (known and unknown)
  - Use equations to relate data to other data
  - Automate the process
    - Acquire data
      - Counting cookies, checking for obstacles
    - Solve for unknown data
    - Perform other actions
      - Moving the robot, printing out an answer
  - Abstract away details to keep things reasonable
    - The size of the cookies didn't matter