

Each time your group is told to “pass the candy” each group member will pass half of his/her candy to the left. Record the number of candies for each group member at each iteration in the table. If a group member has an odd number of candies they keep the extra piece of candy for themselves and then pass half. For example, if you have 13 pieces of candy, you keep 7 and pass 6 when told to iterate.

Iteration Number	# of candies for Student 1	# of candies for Student 2	# of candies for Student 3	# of candies for Student 4

Explain how the number of candies changes over time for each group member. Do the values increase or decrease? What happens to the number of candies for the group members in the long run?

Write the recursive equation for the amount of candy for each group member. Remember each equation should include an initial term and a recurrence relation.

## Homework Problems:

1. You invest \$5000 in an account that pays 3% annual interest compounded monthly. You contribute \$250 to this account each month.
  - a. Write a recursive formula to represent this situation.
  - b. Find the balance in this account after 6 months.
  
2. Suppose the Northeast has a population of about 70,000,000 people and the Southeast has a population of about 40,000,000 people. Every year the Northeast loses 5% of its population to the Southeast and the Southeast loses 2% of its population to the Northeast. Discounting births and immigration,
  - a. What are the estimated populations in the Northeast and Southeast in 1 year? 2 years?
  - b. Show recursive formulas for the populations of both the Northeast and Southeast.
  - c. In how many years are the populations within 1 million people of each other?
  
3. Andrew has \$2000 in an account. Max has \$3000 in an account. The Joker takes 5% of Andrew's money and 1% of Max's money at the end of every month. How much money is in each of the three accounts after one year?
  
  
  
  
  
  
  
  
  
  
4. Ugh! You have \$10,000 in student loans. The interest seems to be piling up (6% *annual* interest rate) but you can only afford to pay \$180 each *month*.
  - a. Write a recursive formula to represent this situation.
  - b. Find the loan balance after making 12 payments.
  - c. When will you finally pay off this loan?