THINKING WRITING

3.C More Banking

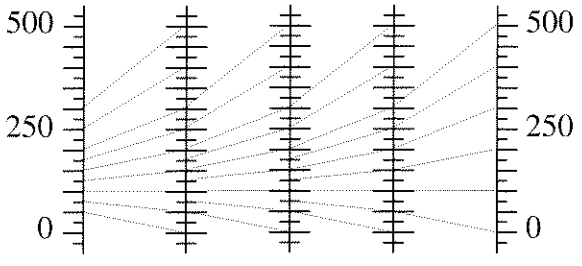
Reg works for Algebank. He was trying to analyze the investment plan described in the first lesson of this chapter. He decided to use x's and y's in his analysis. He wrote:

x = amount of money the person invests
y = amount of money the person has after one month

Since the bank doubles the investor's money and deducts the \$100 fee, the function relating x and y is $y = 2x - 100$.

1. Make a function diagram for this function.
2. Use your function diagram to find out
   a. how much an investor, who had \$300 after one month, started with;
   b. how much an investor, who started with \$300, had after one month.
3. Use your function diagram to find the amount of money the investor started with, who ended up with the same amount of money after one month. (This is called the *fixed point* of the function.)
4. What happens to an investor who starts out with an amount of money less than the fixed point? With an amount of money greater than the fixed point?

To analyze what happens to an investment over a period of more than one month, Reg connected function diagrams. Since the amount at the end of the first month is the amount at the beginning of the second month, he used the y-number line from the first diagram as the x-number line of the next, doing this many times.



5. Describe what the linked function diagrams show.
6. How could one use a single-function diagram to follow what would happen to an investment over a period of more than one month?
7. Use Reg's method to analyze a plan where the investment is multiplied by 1.5 and the service charge is \$50. Describe what your linked diagrams show.
8. Compare the plan in problem 7 with the first plan for someone who invests
   a. \$90; b. \$100; c. \$110.
9. Which do you think has a bigger influence on the amount of money the investor makes, the service charge, or the number by which the investment is multiplied? Write an explanation supporting your opinion. Use several examples.
10. Explain why Al thought it was important to know whether the service charge was deducted before or after the money was doubled. Use some examples. Express each policy with a function.

11. **Report** Write a report on investment plans of the type studied in this assignment and in Lesson 1, plus, optionally, other plans of your design. Use variables. Your report should include, but not be limited to, answers to problems 9 and 10.

12. **Project** Find out what the service charge and interest rate are at three real banks. Figure out what would happen to \$100 invested at each service charge and interest rate over a period of three years. Write up what you discover as if it were an article for the school newspaper, and you were giving advice to students.