10-3 Algebra TASK

Explore Constant Changes

There are many real-life situations in which the amount of change is constant. In these activities, you will explore what happens when

- a quantity increases by a constant amount.
- a quantity decreases by a constant amount.

Use with Rate of Change and Slope

MATHEMATICAL PRACTICES **Reason abstractly and quantitatively.**

MCC9-12.F.IF.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.

Activity 1

Janice has read 7 books for her summer reading club. She plans to read 2 books each week for the rest of the summer. The table shows the total number of books that Janice will have read after different numbers of weeks have passed.

Janice's Summer Reading	
Week	Total Books Read
0	7
1	9
2	11
3	13
4	15
5	17

1. What number is added to the number of books in each row to get the number of books in the next row?
2. What does your answer to Problem 1 represent in Janice's situation? Describe the meaning of the constant change.
3. Graph the ordered pairs from the table. Describe how the points are related.
4. Look again at your answer to Problem 1. Explain how this number affects your graph.

Try This

At a particular college, a full-time student must take at least 12 credit hours per semester and may take up to 18 credit hours per semester. Tuition costs $200 per credit hour.

Tuition Costs	
Credit Hours	Cost ($)
12	
13	
14	
15	
16	
17	
18	

1. Copy and complete the table by using the information above.
2. What number is added to the cost in each row to get the cost in the next row?
3. What does your answer to Problem 2 above represent in the situation? Describe the meaning of the constant change.
4. Graph the ordered pairs from the table. Describe how the points are related.
5. Look again at your answer to Problem 2. Explain how this number affects your graph.
6. Compare your graphs from Activity 1 and Problem 4. How are they alike? How are they different?
7. **Make a Conjecture** Describe the graph of any situation that involves repeated addition of a positive number. Why do you think your description is correct?