Patterns and Problems

1. Jacob's function table is missing its rule. Help Jacob find the rule for his function table. Which of Jacob's rules do you agree with? Show or tell how you know your rule works.

Jacob's Table

Input	Output
0	5
1	7
2	9
3	11
4	13
5	15
N	

N × N + 5

N + N + 5

5 + N × 2

N + 5

2. Linda's function table is also missing its rule. Help Linda find the rule for her function table. Which of Linda's rules do you agree with? Show or tell how you know your rule works.

Linda's Table

Input	Output
0	10
1	12
2	14
3	16
4	18
5	20
N	

N + 10

N + N + 10

N × 2 + 10

3. Look at Linda's and Jacob's rules in Questions 2 and 3.
   A. How are they alike?
   B. How are they different?

Use the *Rules, Tables, and Graphs* pages in your *Student Activity Book* to review patterns and functions.

Patterns and Problems   SG · Grade 4 · Unit 13 · Lesson 7   **577**

Student Guide - Page 577

Name _____   Date _____

Rules, Tables, and Graphs

1. Ming's function machine triples a number, then subtracts three. Jackie's function machine doubles a number, then subtracts two.

Table A

Input	Output	Ordered Pairs (Input, Output)
1	0	(1, 0)
2	3	(2, 3)
3	6	(3, 6)

Table B

Input	Output	Ordered Pairs (Input, Output)
1	0	(1, 0)
2	2	(2, 2)
3	4	(3, 4)

A. Which function table is Ming's? _____

B. Which function table is Jackie's? _____

C. Ming and Jackie graphed the data in their function tables. Is this Ming's graph or Jackie's graph? How do you know?

D. Graph the points in the other table. Draw a line.

Patterns and Problems   SAB · Grade 4 · Unit 13 · Lesson 7   **565**

Student Activity Book- Page 565
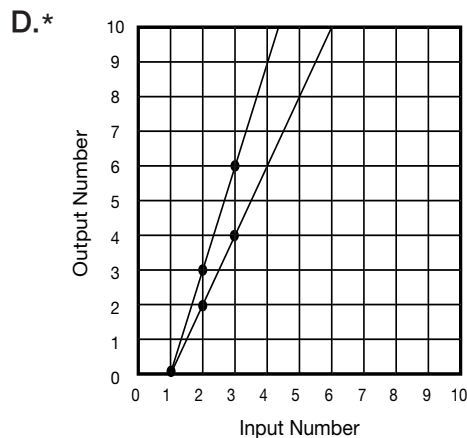

Student Guide

Questions 1–3 (SG pp. 577)

1.* $N + N + 5$ and $5 + N \times 2$. Possible response: both $N + N + 5$ and $5 + N \times 2$ work. I tried each for all the inputs and they work. I know $N + 5$ does not work because $1 + 5$ does not equal 7. $N \times N + 5$ did not work either.
$3 \times 3 + 5 = 14$, not 11.

2.* $N + N + 10$ and $N \times 2 + 10$. Possible response: I tried them both and they worked for every input in the table. I know $N + 10$ does not work because $2 + 10$ does not equal 14.

3. A.* Linda and Jacob both double N.
   B.* Linda adds 10. Jacob adds 5.

Student Activity Book

Rules, Tables, and Graphs

Questions 1–10 (SAB pp. 565–570)

1. A. Table A is Ming's.
   B. Table B is Jackie's.
   C.* Ming. Possible responses: I matched up the data in the table with the data points on the graph; or I noticed the "step" in the graph was 3 and Ming's table also has a "step" of three between points.
   D.*

*Answers and/or discussion are included in the lesson.