NAME _____

Module 9 Using Functions
Lesson 3 Writing Functions from Patterns

guided notes

Lesson Objectives

- Write a function rule for a linear pattern.
- Write a function rule for a nonlinear pattern.

1 A function f had the following input/output values. Write an equation to define the function f, and use it to find the output when the input is –9.

$f(x) = \frac{x}{3}$; $f(-9) = -3$

Input	Output
5	$\frac{5}{3}$
4	$\frac{4}{3}$
3	1

2 John was given the following input/output table by a friend. Write a function for the pattern in the table. $f(x) = 0$

Input	Output
–1	0
4	0
6	0
10	0

To find a function rule for a linear pattern, use the **slope** along with one of the input/output pairs in the pattern to determine the y-intercept. Then, write the rule in slope-intercept form.

3 Write a function for the pattern shown in the table.

$f(x) = -x + 3$

Input	Output
2	1
4	–1
6	–3
8	–5

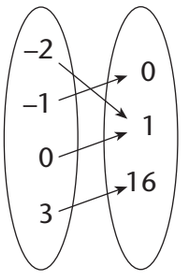
4 Find a function containing the following ordered pairs: (0, 5), (3, 7), (6, 9), (9, 11) $f(x) = \frac{2}{3}x + 5$

5 Write a function for the input/output table.

Input	Output
0	0
1	1
4	2
9	3
25	5

$f(x) = \sqrt{x}$

6 Write a function for the given mapping.



$f(x) = (x + 1)^2$