

6.3: Patterns and Nonlinear Functions

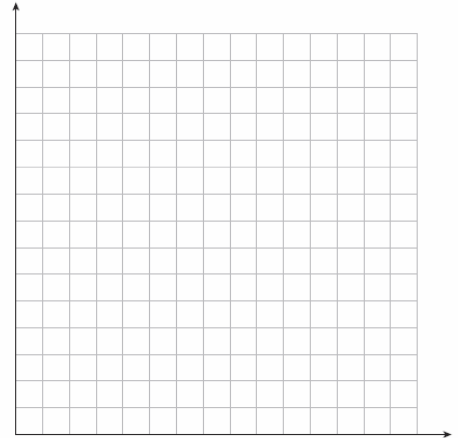
Name: \_\_\_\_\_  
Algebra 1

Date: \_\_\_\_\_  
Band: \_\_\_\_\_

**LT#3:** Identify and represent patterns that describe nonlinear functions.

1. A student's earnings  $E$ , in dollars, is a function of the number  $h$  of hours worked. Graph the function shown by the table. Tell whether the function is *linear* or *nonlinear*.

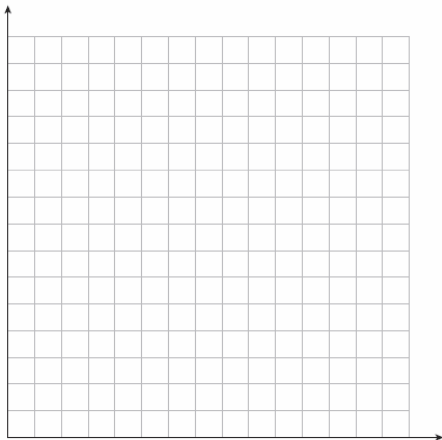
Hours, $h$	2	4	6	8	10
Earnings (\$), $E$	18	36	54	72	90



Graph the function shown by each table. Tell whether the function is *linear* or *nonlinear*.

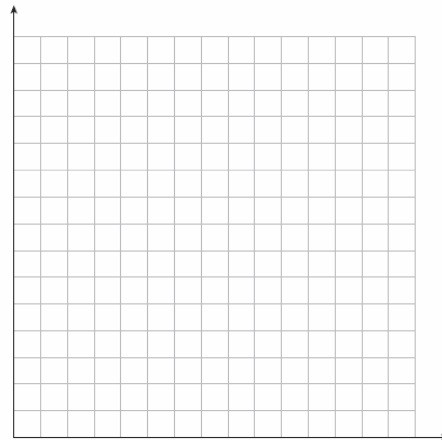
2.

$x$	$y$
0	3
1	5
2	7
3	9



3.

$x$	$y$
0	0
1	2
2	-4
3	7



Each set of ordered pairs represents a function. Write a rule that represents the function.

4.  $(0,1), (1,3), (2,9), (3,27), (4,81)$

5.  $(0,0), (1,1), (2,4), (3,9), (4,16)$

6.  $(0,1), \left(1, \frac{1}{2}\right), \left(2, \frac{1}{4}\right), \left(3, \frac{1}{8}\right), \left(4, \frac{1}{16}\right)$

7.  $(0,0), (1,1), (2,8), (3,27), (4,64)$

8. A certain function fits the following description: *As the value of  $x$  increases by 1 each time, the value of  $y$  decreases by the square of  $x$ .* Is this function *linear* or *nonlinear*? Explain your reasoning.