

# 4-3

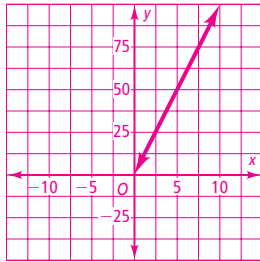
## Practice

Form K

### Patterns and Nonlinear Functions

1. A worker's wages  $W$ , 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
Wages (\$), $W$	20	40	60	80	100

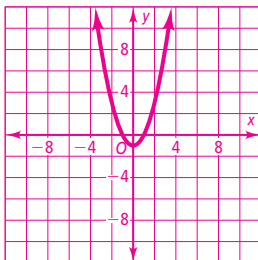


linear

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

2.

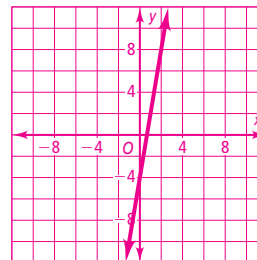
$x$	$y$
0	-1
1	0
2	3
3	8



nonlinear

3.

$x$	$y$
0	-4
1	2
2	8
3	14



linear

## 4-3

## Practice (continued)

Form K

## Patterns and Nonlinear Functions

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

4.  $(0, 0), (1, 1), (2, 4), (3, 9), (4, 16)$   $y = x^2$

5.  $(0, 1), (1, 5), (2, 9), (3, 13), (4, 17)$   $y = 4x + 1$

6.  $(0, -1), (1, 0), (2, 7), (3, 26), (4, 63)$   $y = x^3 - 1$

7.  $(0, 2), (1, 1), (2, 0), (3, -1), (4, -2)$   $y = -x + 2$

8. **Writing** How can you determine if a function is linear or nonlinear from the graph of the function?

If the function is linear, the graph will form a straight line. If the function is nonlinear, the graph will not form a straight line.

9. **Error Analysis** A student says that the function shown by the table below can be represented by the rule  $y = x^2 - 1$ . Describe and correct the error.

$x$	0	1	2	3	4
$y$	-1	1	3	5	7

The student used only the first and third sets of points to write the rule; a rule that represents the entire table is  $y = 2x - 1$ .