Name KEY Class _____ Date _____

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

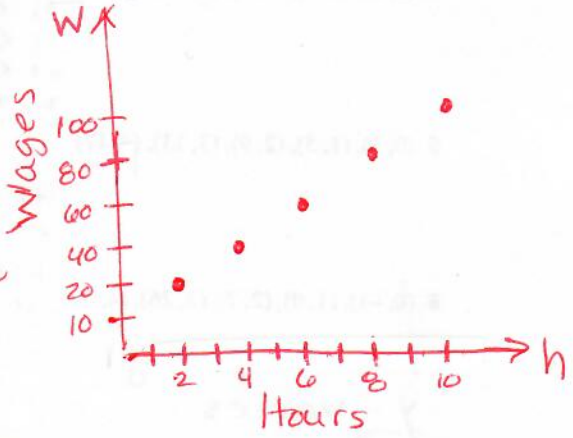
+2 +2 +2 +2

+20 +20 +20 +20

Linear b/c
constant rate of change

$y = \frac{20}{2}x + 0$

$y = 10x$



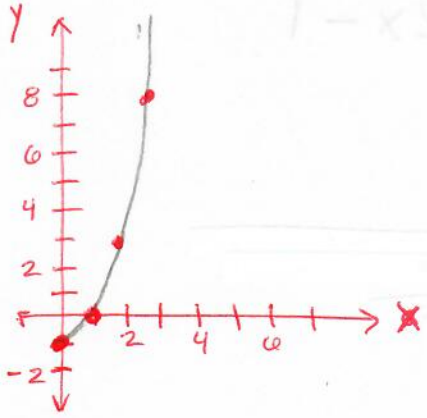
Graph the function shown by each table. Tell whether the function is *linear* or *nonlinear*.

2.

x	y
0	−1
1	0
2	3
3	8

+1, +1, +1 / +1, +3, +5

Non-linear b/c
NOT a constant
rate of change

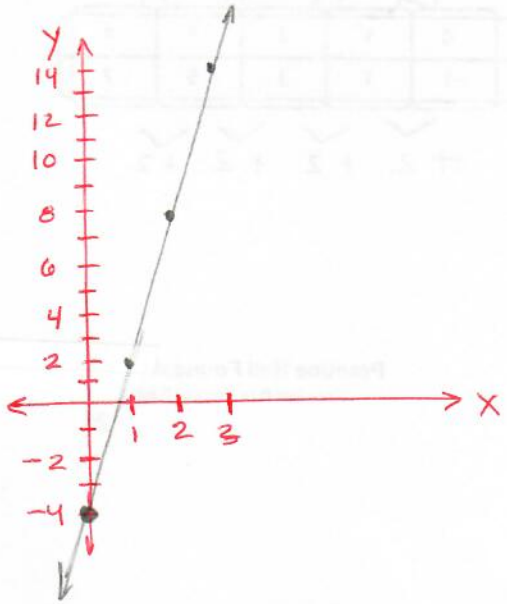


3.

x	y
0	−4
1	2
2	8
3	14

+1, +1, +1 / +6, +6, +6

Linear b/c
constant rate of change



Name _____ Class _____ Date _____

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)

x	y	
0	0	+1
1	1	+3
2	4	+5
3	9	+7
4	16	

Non-linear

5. (0, 1), (1, 5), (2, 9), (3, 13), (4, 17)

x	y	
0	1	+4
1	5	+4
2	9	+4
3	13	+4
4	17	

Linear

$y = 4x + 1$

6. (0, −1), (1, 0), (2, 7), (3, 26), (4, 63)

x - increase by 1

y - varies

Nonlinear

7. (0, 2), (1, 1), (2, 0), (3, −1), (4, −2)

x - increase by 1

y - decrease by 1

Linear

$y = -1x + 2$

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

Linear graphs form lines and have a constant rate of change.

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

+1 +1 +1 +1

+2 +2 +2 +2

Linear b/c constant rate of change

$y = 2x - 1$

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