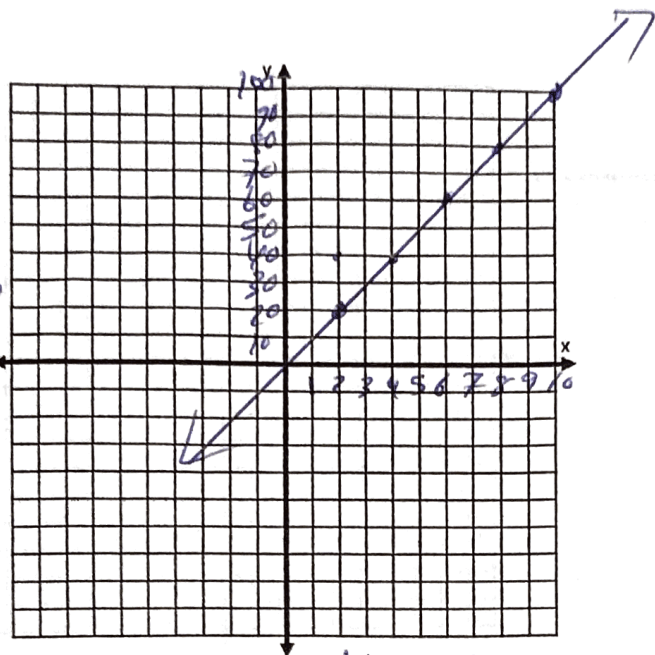
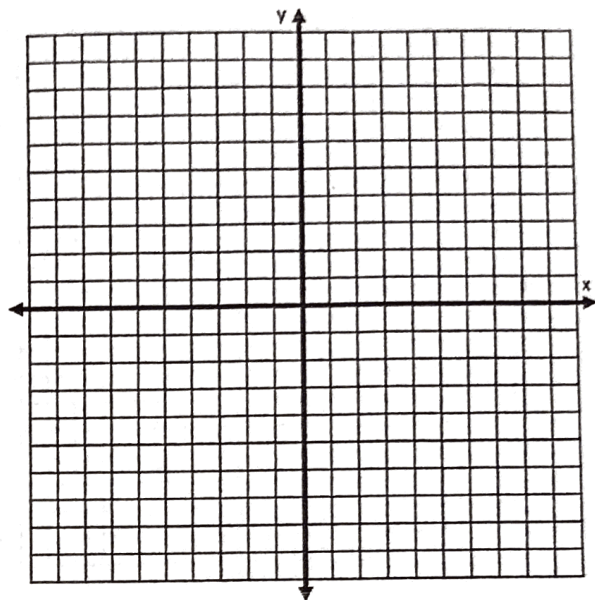


1)

X	Y
2	20
4	40
6	60
8	80
10	100

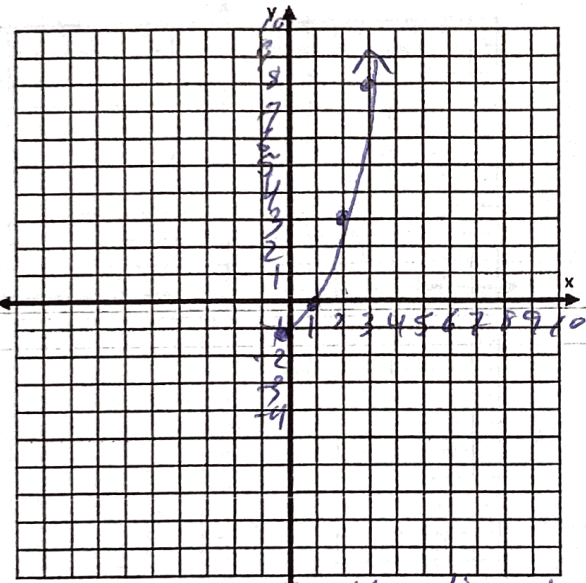


linear.

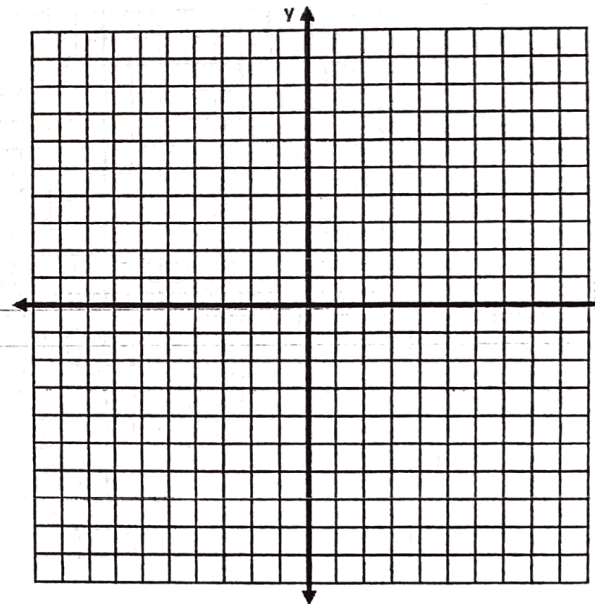


2)

X	Y
0	-1
1	0
2	3
3	8

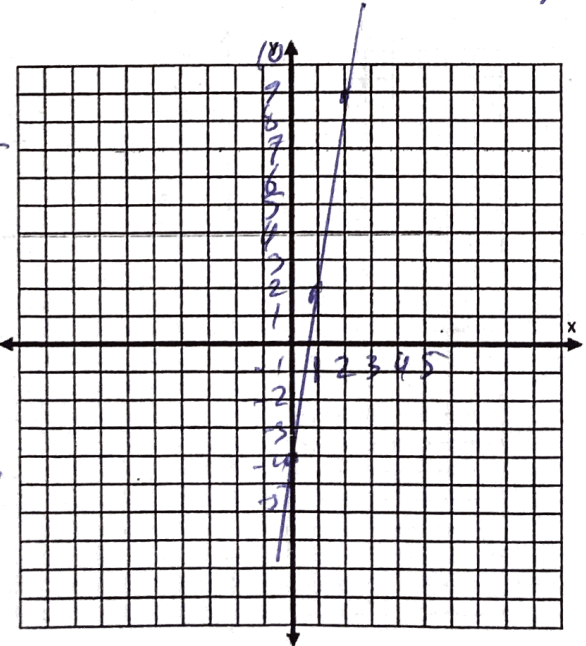


Not linear

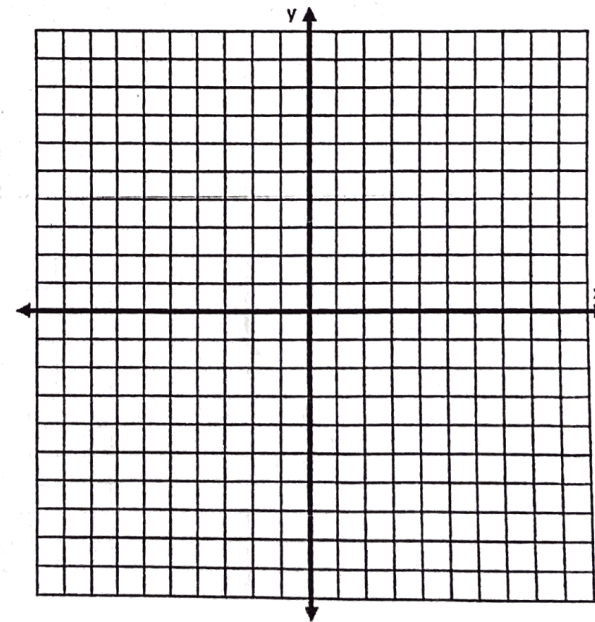


3)

X	Y
0	-4
1	2
2	8
3	14



linear.



# 2-3 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)

Non linear.

x	y
0	0
1	1
2	4
3	9
4	16

Slope  $\frac{y}{x} = \frac{1}{1} = 1$   
 $\frac{3}{1} = 3$   
 $\frac{5}{1} = 5$   
 $\frac{7}{1} = 7$

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

linear.

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

$\frac{y}{x} = \frac{4}{1} = 4$   
 y-intercept = 1  
 b = 1

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

Non linear.

x	y
0	-1
1	0
2	7
3	26
4	63

$\frac{1}{1} = 1$   
 $\frac{7}{1} = 7$   
 $\frac{19}{1} = 19$

$y = mx + b$   
 $y = 4x + 1$

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

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

$\frac{y}{x} = \frac{-1}{1} = -1$

b = 2  
 $y = mx + b$

$y = -1x + 2$

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 non linear, 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

0	-1
1	1
2	3
3	5
4	7

slope  $\frac{y}{x} = \frac{2}{1} = 2$   
 b = -1  
 $y = mx + b$   
 $y = 2x - 1$

Period 2nd.

Name \_\_\_\_\_

Date \_\_\_\_\_

1)

	x	y	
1	0	3	4
1	1	7	4
1	2	11	4
	3	15	

slope  $\frac{y}{x} = \frac{4}{1} = 4$

$b = 3$

$y = m x + b$

$y = 4x + 3$

2)

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

slope  $\frac{y}{x} = \frac{2}{1} = 2 = m$

$b = -4$

$y = m x + b$

$y = 2x - 4$

3)

	x	y	
1	0	2	2
1	1	4	2
1	2	6	2
1	3	8	

$\frac{y}{x} = \frac{2}{1} = 2$

$b = 2$

$y = m x + b$

$y = 2x + 2$

4)

	x	y	
1	0	30	2
1	1	28	-2
1	2	26	-2
1	3	24	

slope  $\frac{y}{x} = \frac{-2}{1} = -2$

$b = 30$

$y = m x + b$

$y = -2x + 30$