Name _____ Date _____

HW 16: P. 117#1-27 odds, 58-61 all and the Practice Quiz

Linear Functions	Non-Linear Functions
Have a constant rate of change. If there is a constant change in *x*-values, then there will also be a constant change in the *y*-values.	Do not have a constant rate of change.
Can be written in the form $y = mx + b$ where m and b are constants.	Are written in a form other than $y = mx + b$. For example, $y = 3x^2 + 4$ is NOT a linear function.
The graph will be a non-vertical line.	The graph will not be a line.

Determine whether each relation represents a linear or nonlinear function. Explain.

1.

2.
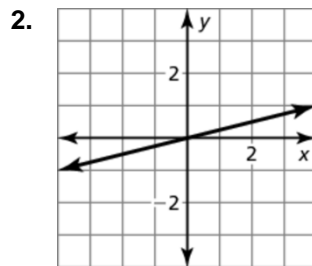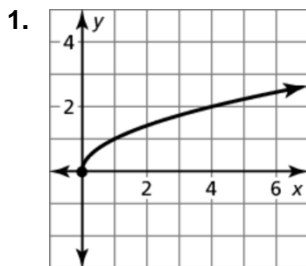
3.

x	1	2	3	4
y	−1	2	5	8

4.

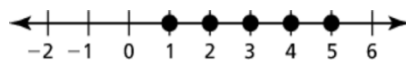| **x**	−1	0	1	2
y	0	−1	0	3

5. $y = 3 - 2x$

6. $y = -\dfrac{3}{4}x^3$

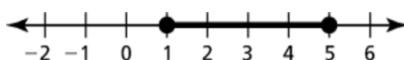## Discrete and Continuous Domains

A **discrete domain** is a set of input values that consists of only certain numbers in an interval.
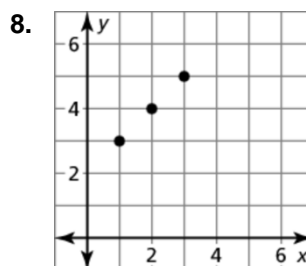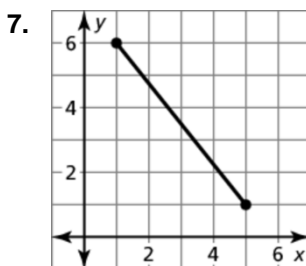
Example: Integers from 1 to 5

A **continuous domain** is a set of input values that consists of all numbers in an interval.
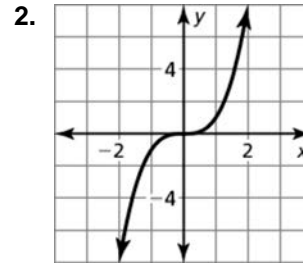
Example: All numbers from 1 to 5

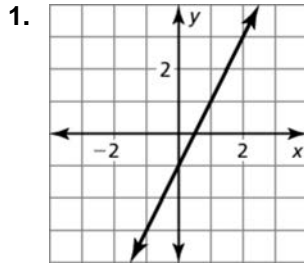**For # 7 and 8, find the domain of the function represented by the graph. Determine whether the domain is *discrete* or *continuous*. Explain.**

7.

8.

3.2 CW 16: Practice A

In Exercises 1 and 2, determine whether the graph represents a *linear* or *nonlinear* function. Explain.

1.

2.

In Exercises 3 and 4, determine whether the table represents a *linear* or *nonlinear* function. Explain.

3.

x	0	1	2	3
y	3	5	7	9

4.

x	1	4	7	10
y	2	5	6	10

In Exercises 5–8, determine whether the equation represents a *linear* or *nonlinear* function. Explain.

5. $y = \sqrt{x} + 5$

6. $y = 4x - 2$

7. $y = 9 - x$

8. $y = (x - 1)(x + 7)$

9. Fill in the table so it represents a linear function.

x	4	8	12	16	20
y	−4				12

In Exercises 10 and 11, find the domain of the function represented by the graph. Determine whether the domain is *discrete* or *continuous*. Explain.

10.

11.