


## Notes 2-3

Sec 1 H

Domain, Range, & Continuity

Unit 2

### Vocabulary:

Domain: $x$ values input	Range: $y$ values output
Set Builder Notation: * uses inequalities $<$ $>$ open dots $\leq$ $\geq$ closed dots $x > 5$ 	Interval Notation: $[min, max)$ $( )$ open dots $[min, max]$ $[ ]$ closed dots $(min, max]$ $(min, max)$

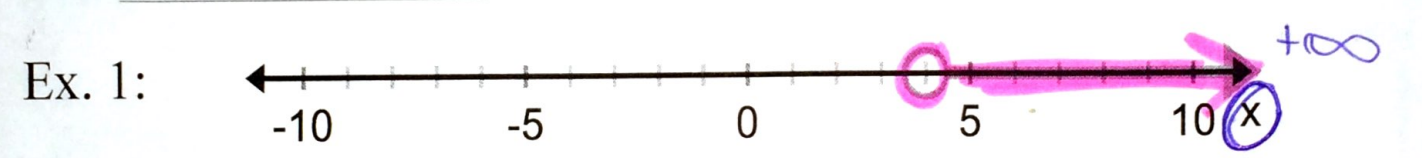
**Continuity**  $\rightarrow$  what the function looks like

Continuous: trace the function w/o picking up your pencil

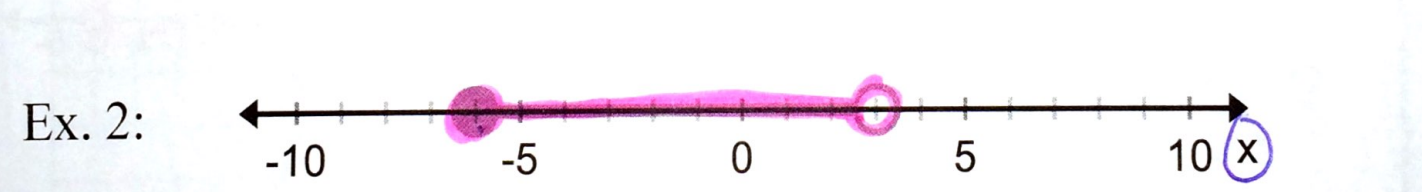
Non-continuous: trace it But you have to pick up your pencil

Discrete: just dots.

**Identify the domain for each graph using BOTH set builder and interval notation.**



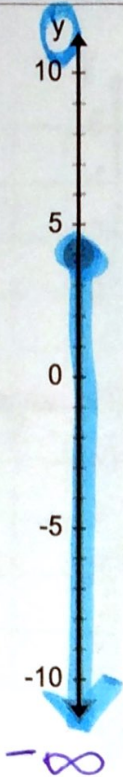
Set Builder:  $x > 4$       Interval:  $(4, \infty)$



Set Builder:  $-6 \leq x < 3$       Interval:  $[-6, 3)$

Identify the **range** for each graph using BOTH set builder and interval notation.

Ex. 3:



Set Builder:

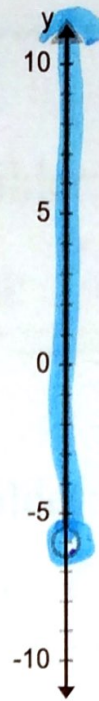
$$y \leq 4$$

Interval:

$$(-\infty, 4]$$

min, max

Ex. 4:



Set Builder:

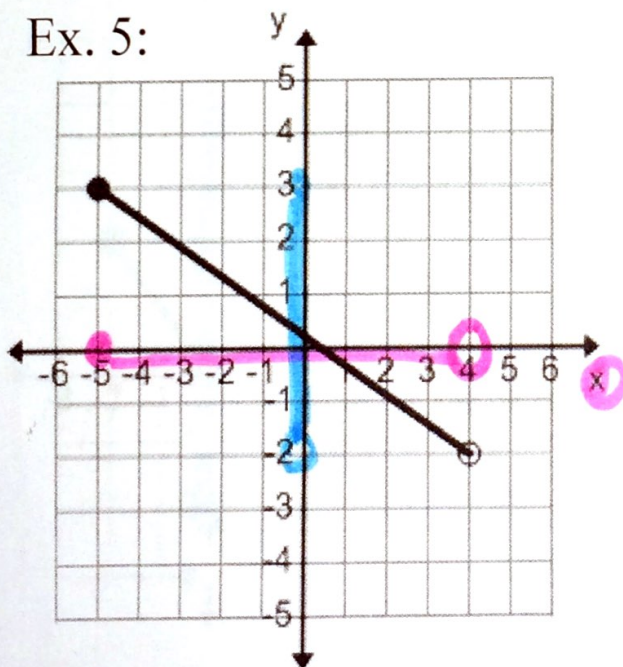
$$y > -6$$

Interval:

$$(-6, \infty)$$

Identify the domain, range, and continuity for each graph using set builder and interval notation.

Ex. 5:



Domain X

Set Builder:  $-5 \leq x < 4$

Interval:  $[-5, 4)$

Range

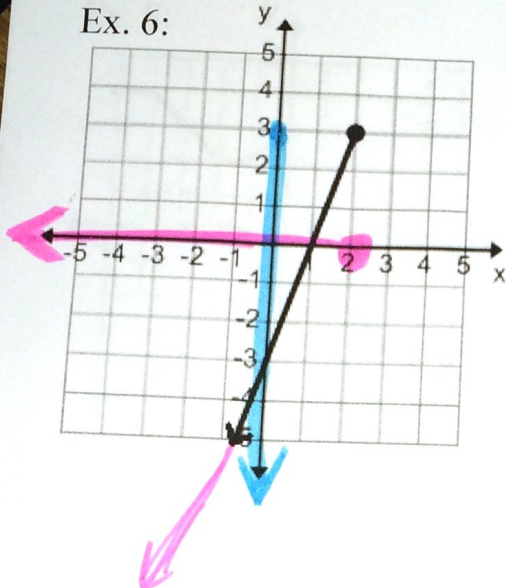
Set Builder:  $-2 < y \leq 3$

Interval:  $(-2, 3]$

Continuity: Continuous

Identify the domain, range, and continuity for each graph using set builder and interval notation.

Ex. 6:



Domain  $x$

Set Builder:  $x \leq 2$

Interval:  $(-\infty, 2]$

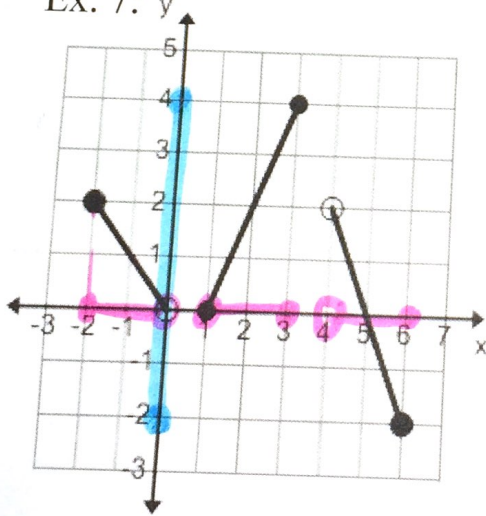
Range

Set Builder:  $y \leq 3$

Interval:  $(-\infty, 3]$

Continuity: Continuous

Ex. 7:



Domain  $x$   $-2 \leq x < 6$

Set Builder:  $-2 \leq x < 0$   
 $1 \leq x \leq 3$   
 $4 < x \leq 6$

Interval:  $[-2, 0) [1, 3] (4, 6]$

Range  $y$

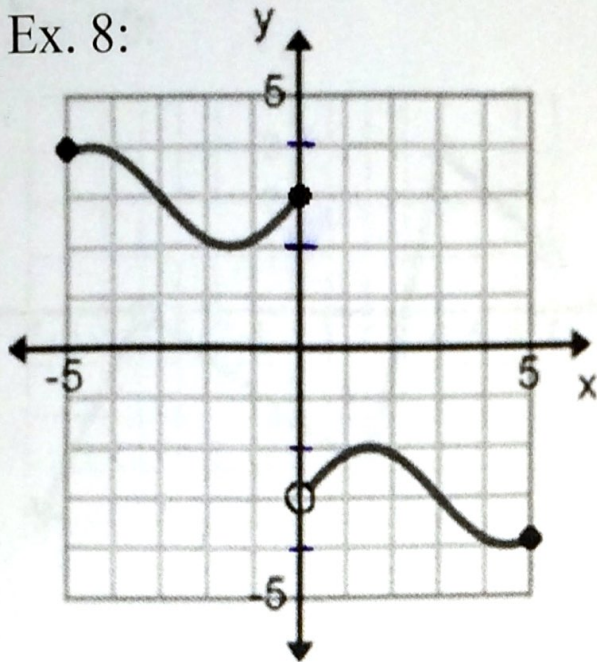
Set Builder:  $-2 \leq y \leq 4$

Interval:  $[-2, 4]$

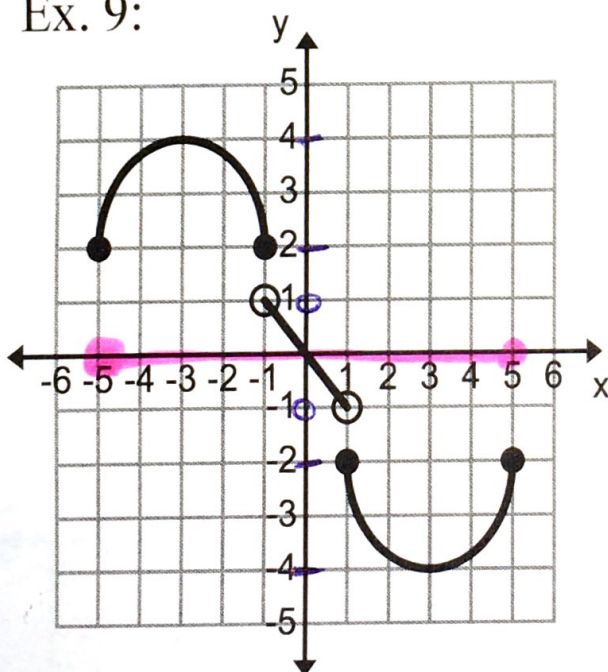
Continuity Non Continuous

Identify the domain, range, and continuity for each graph using set builder and interval notation.

Ex. 8:

DomainSet Builder:  $-5 \leq x \leq 5$ Interval:  $[-5, 5]$ Range $-4 \leq y \leq -2$ Set Builder:  $2 \leq y \leq 4$ Interval:  $[-4, -2]$   $[2, 4]$ Continuity: *Non-continuous*

Ex. 9:

DomainSet Builder:  $-5 \leq x \leq 5$ Interval:  $[-5, 5]$ Range $-4 \leq y \leq -2$ Set Builder:  $-1 < y < 1$   
 $2 \leq y \leq 4$ Interval:  $[-4, -2]$   $(-1, 1)$   $[2, 4]$ Continuity: *Non-continuous*

Notes 2-3

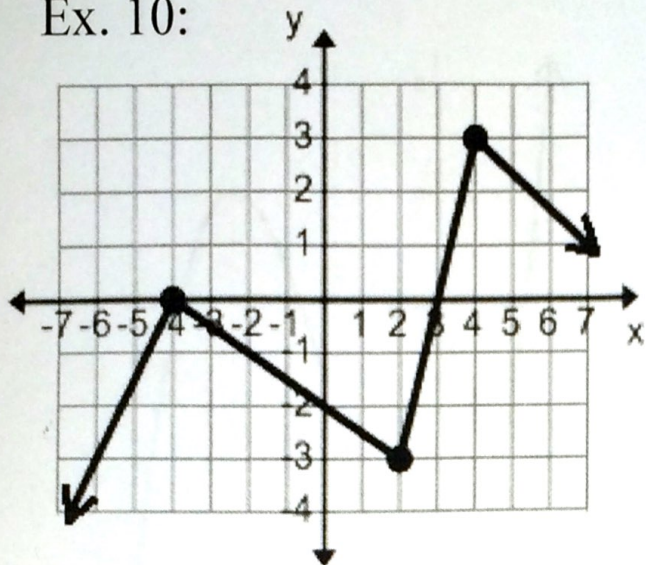
Sec 1 H

Domain, Range, & Continuity

Unit 2

Identify the domain, range, and continuity for each graph using set builder and interval notation.

Ex. 10:



Domain

Set Builder:  $\mathbb{R}$

Interval:  $(-\infty, \infty)$

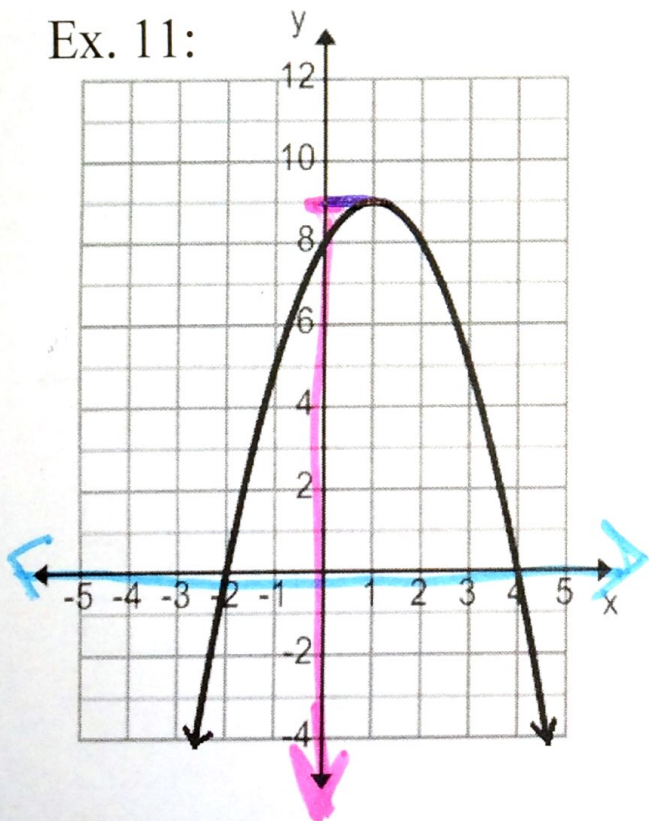
Range

Set Builder:  $y \leq 3$

Interval:  $(-\infty, 3]$

Continuity: Continuous

Ex. 11:



Domain

Set Builder:  $\mathbb{R}$  all real #'s

Interval:  $(-\infty, \infty)$

Range

Set Builder:  $y \leq 9$

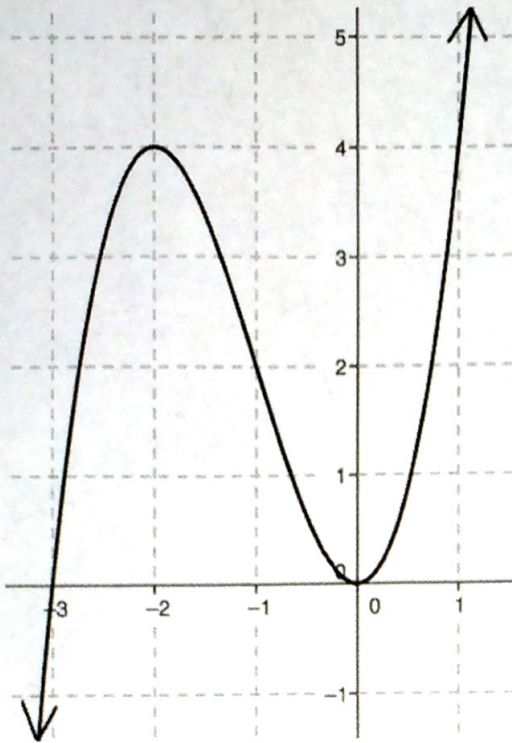
Interval:  $(-\infty, 9]$

Continuity: Cont.

Notes 2-3

Identify the domain, range, and continuity for each graph using set builder and interval notation.

Ex. 12:

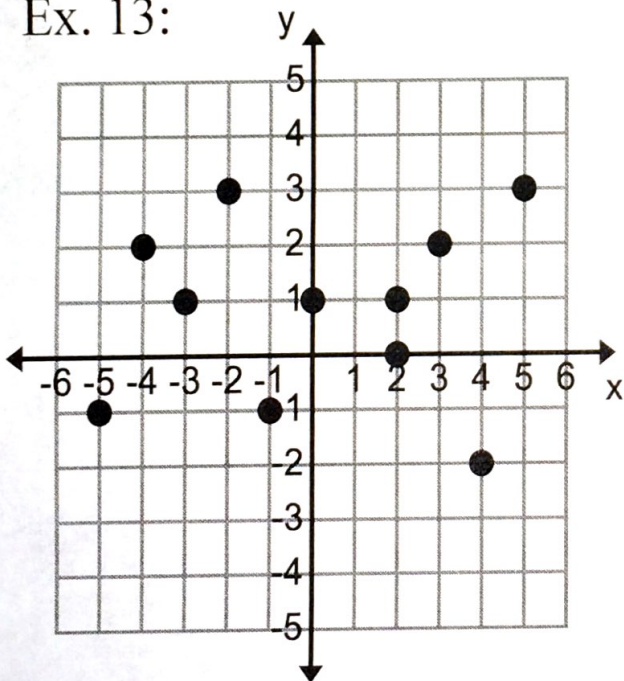


Domain  
 Set Builder:  $\mathbb{R}$   
 Interval:  $(-\infty, \infty)$

Range  
 Set Builder:  $\mathbb{R}$   
 Interval:  $(-\infty, \infty)$

Continuity: *Continuous*

Ex. 13:



Domain  
*only* Set Builder:  $\{-5, -4, -3, -2, -1, 0, 2, 3, 4, 5\}$   
 Interval: ~~Interval:~~

Range  
*only* Set Builder:  $\{-2, -1, 0, 1, 2, 3\}$   
 Interval: ~~Interval:~~

Continuity *Discrete*