

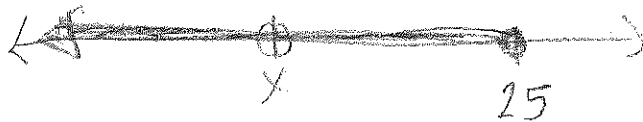
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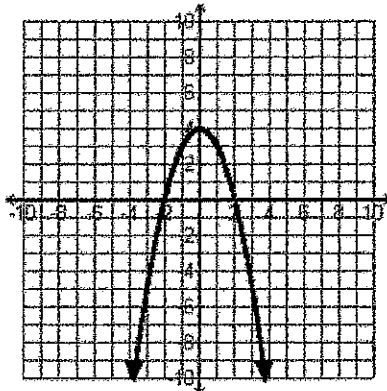
Lesson 1.03 - Domain and Range Notes

Inequality	Verbal Description	Is it true?
$x > 4$	x is greater than 4	Can x be 10? YES
$6 \leq x < 10$	x is greater than or equal to 6 and x is less than 10	Can x be 10? NO
$x \leq 25$	x is less than or equal to 25	Can x be 25? YES
$a > .5$	a is greater than .5	Can a be .25? NO
$-1 \leq h \leq 15$	h is greater than or equal to -1 and h is less than or equal to 15	Can h be 0? YES
$8 < y \leq 16$	y is greater than 8 and less than or equal to 16	Can y be 8? NO
$t \geq 19$	t is greater than or equal to 19	Can t be 20? YES
* $-\infty < x \leq 25$ $x \leq 25$	x is less than or equal to 25	Can x be -100? YES
$2 < x < 10$	x is greater than 2 and less than 10	Can x be 11? NO
$x \leq 20$ or $x > 35$	x is less than or equal to 20 greater than 35	Can x be 22? NO

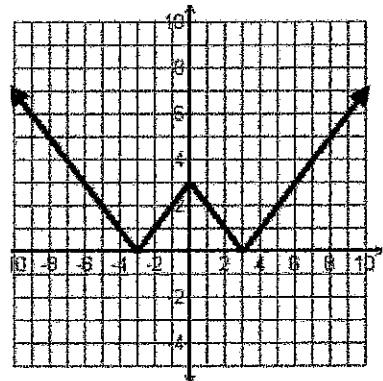


	Inequality	Interval Notation	Graph
Ex.	$-3 \leq x < 5$	$[-3, 5)$	
Ex.	$x > 2$	$(2, \infty)$	
1.	$x \leq 3$	$(-\infty, 3]$	
2.	$x < 4$	$(-\infty, 4)$	
3.	$2 \leq x \leq 6$	$[2, 6]$	
4.	$x \geq 5$	$[5, \infty)$	
5.	$x \leq 1$	$(-\infty, 1]$	
6.	$x < 1 \text{ or } x \geq 5$	$(-\infty, 1) \cup [5, \infty)$	
7.	$-5 < x < -1$	$(-5, -1)$	
8.	x is any real #	$(-\infty, \infty)$	
9.	$x \leq -1 \text{ or } x > 2$	$(-\infty, -1] \cup (2, \infty)$	
10.	$1 < x < 4$	$(1, 4)$	
11.	$x > 7$	$(7, \infty)$	
12.	$-2 \leq x \leq 2$	$[-2, 2]$	

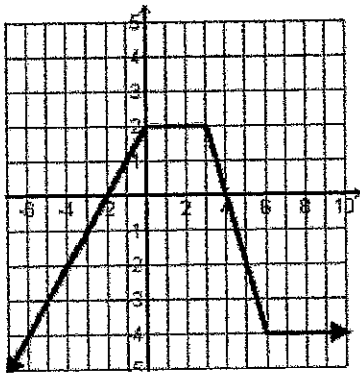
13. Given the graph of $f(x)$ below find:
 On what intervals of x is $f(x)$ increasing? $(-\infty, 0)$
 On what intervals of x is $f(x)$ positive? $(-2, 2)$



14. Given the graph of $f(x)$ below find: $(-\infty, -3) \cup (0, 3)$
 On what intervals of x is $f(x)$ decreasing?
 On what intervals of x is $f(x)$ positive? $(-\infty, -3) \cup (-3, 3) \cup (3, \infty)$



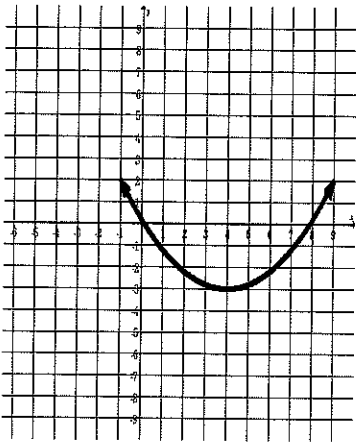
15. Given the graph of $f(x)$ below find:
 On what intervals of x is $f(x)$ constant? $[0, 3] \cup [6, \infty)$
 On what intervals of x is $f(x)$ negative? $(-\infty, 2) \cup (4, \infty)$



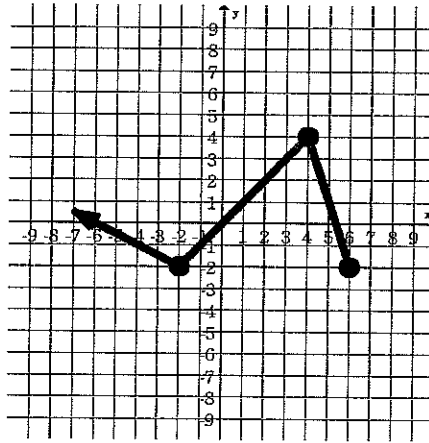
Use the graphs on the last page of the notes to fill in the table below.

	DOMAIN		RANGE	
	Inequality Notation	Interval Notation	Inequality Notation	Interval Notation
1.	All Real #s	$(-\infty, \infty)$	$y \geq -3$	$[3, \infty)$
2.	$x < 6$	$(-\infty, 6)$	$-2 \leq y \leq 4$	$[-2, 4]$
3.	$-9 \leq x \leq 9$	$[-9, 9]$	$-3 \leq y \leq 6$	$[-3, 6]$
4.	$-7 < x < 4$ and $4 < x \leq 6$	$(-7, 4) \cup (4, 6]$	$-6 \leq y \leq 4$	$[-6, 4]$
5.	$-\infty < x < \infty$	$(-\infty, \infty)$	$-\infty < y < \infty$	$(-\infty, \infty)$
6.	$-\infty < x < \infty$	$(-\infty, \infty)$	$y \geq -8$	$[8, \infty)$
7.		$\{-6, -2, 2, 4\}$		$\{-7, -4, 3, 5\}$
8.		$\{-8, -6, 2, 4, 5\}$		$\{7, -4, 3, 4, 5\}$

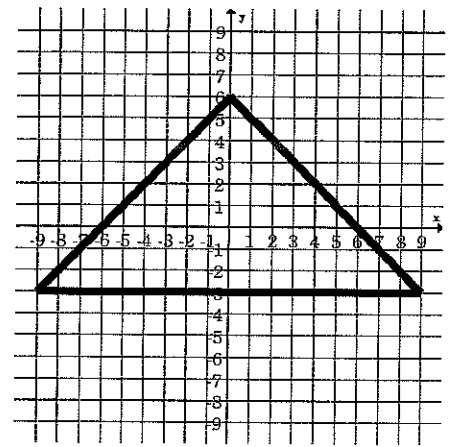
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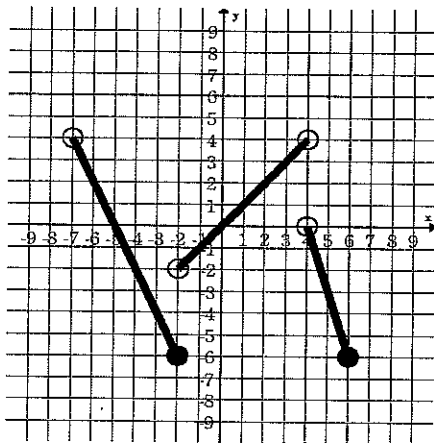
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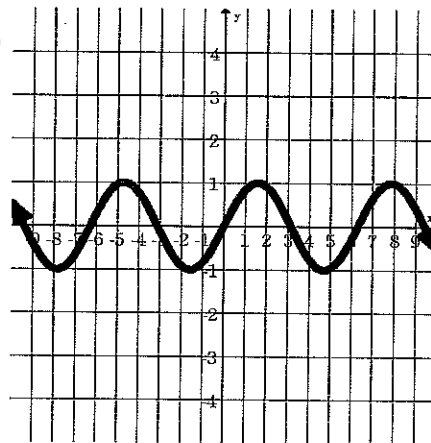
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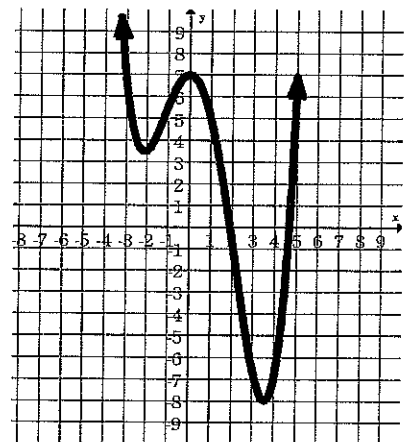
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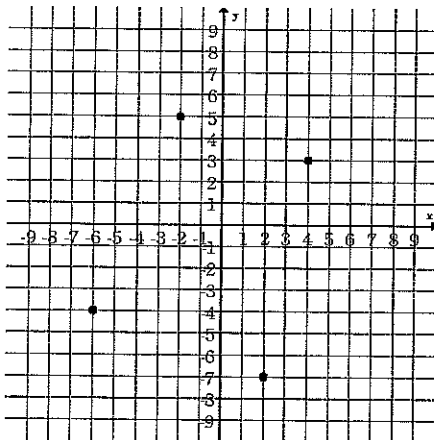
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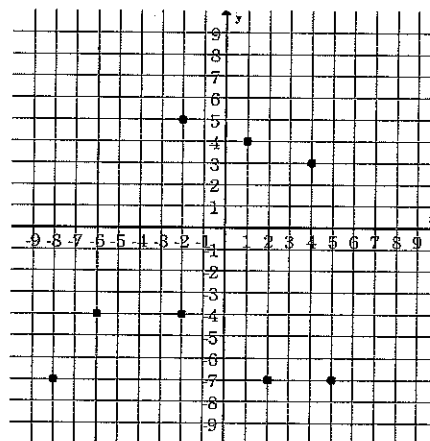
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7



8



Which examples above are functions?

1, 2, 4, 5, 6, 7

Which of the graphs are continuous?

1, 2, 3, 5, 6

Which of the graphs above are discrete?

7, 8