Name:_____Score:_____

Teacher:_____Date: _____

The Domain and range of a function

I. Given the following in set-builder notation, express the answer in interval notation.

1. $\{x : x > -5\}$

2. $\{x : -5 < x \leq 7\}$

3. x is all reals

4. $\{x : x \leq 4, x \geq 6\}$

II. Given the following in interval notation, express the answer in set-builder notation.

5. $(-\infty, 4]$

6. $(-\infty, -3] \cup (4, \infty)$

7. $[2, 6)$

8. $(5, 8)$

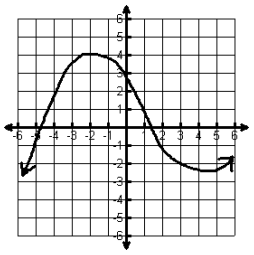
III. For each graph:

(a) Describe the domain and range using set builder notation

(b) Describe the domain and range using interval notation.

(c) Determine if the graph is a function.

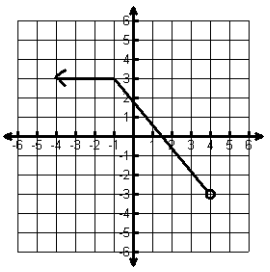
9.



Set Builder notation:

Interval Notation:

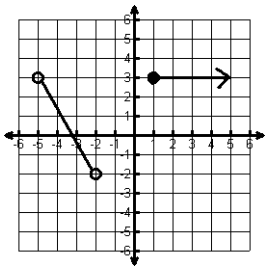
10.



Set Builder notation:

Interval Notation:

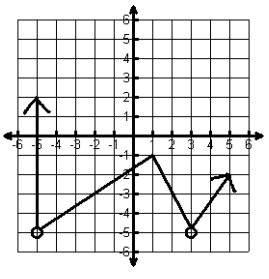
11.



Set Builder notation:

Interval Notation:

12.



Set Builder notation:

Interval Notation:

Solutions

1- $(-5, +\infty)$

2- $(-5, 7]$

3- $(-\infty, +\infty)$

4- $(-\infty, 4] \cup [6, \infty)$

5- $\{x : x \leq 4\}$

6- $\{x : x \leq -3, x > 4\}$

7- $\{x : 2 \leq x < 6\}$

8- $\{x : 5 < x \leq 8\}$

9- (a) $D = \{x : x \in \mathbb{R}\}$, $R = \{y : y \leq 4\}$ (b) $D = (-\infty, +\infty)$, $R = (-\infty, 4]$ (c) Yes

10- (a) $D = \{x : x < 4\}$, $R = \{y : -3 < y \leq 3\}$ (b) $D = (-\infty, 4)$, $R = (-3, 3]$ (c) Yes

11- (a) $D = \{x : -6 < x < -2, x \geq 1\}$, $R = \{y : -2 < y \leq 3\}$ (b) $D = (-6, -2] \cup [1, +\infty)$, $R = (-2, 3]$ (c) Yes

12- (a) $D = \{x : x \geq -5\}$, $R = \{y : y > -5\}$ (b) $D = [-5, +\infty)$, $R = (-5, +\infty)$ (c) No