Name _____ Date _____ Class _____

LESSON 4-2

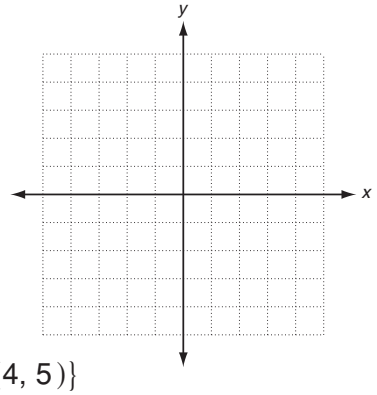
Practice B

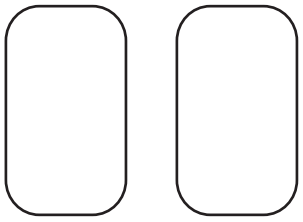
Relations and Functions

Express each relation as a table, as a graph, and as a mapping diagram.

1. $\{(-5, 3), (-2, 1), (1, -1), (4, -3)\}$

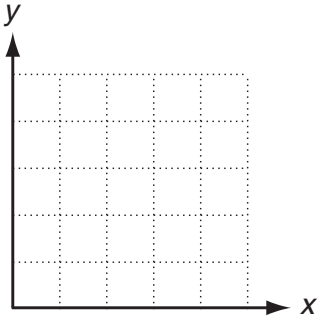
x	*y*

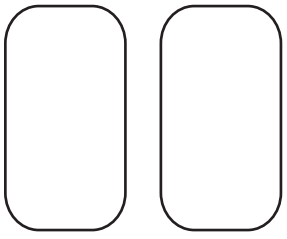




2. $\{(4, 0), (4, 1), (4, 2), (4, 3), (4, 4), (4, 5)\}$

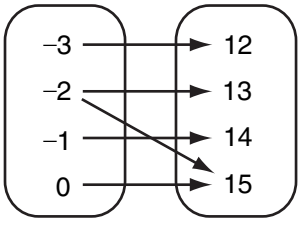
x	*y*





Give the domain and range of each relation. Tell whether the relation is a function. Explain.

3.



D: _____

R: _____

Function? _____

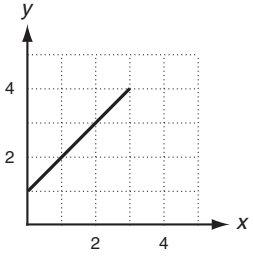
Explain: _____

_____

_____

_____

4.



D: _____

R: _____

Function? _____

Explain: _____

_____

_____

_____

5.

x	*y*
8	8
6	6
4	4
2	6
0	8

D: _____

R: _____

Function? _____

Explain: _____

_____

_____

_____

LESSON 4-2

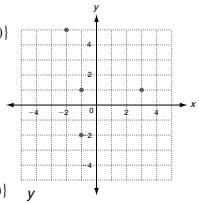
Practice A

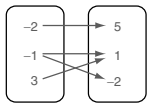
Relations and Functions

Express each relation as a table, as a graph, and as a mapping diagram.

1. {(−2, 5), (−1, 1), (3, 1), (−1, −2)}

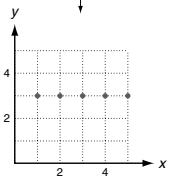
x	y
−2	5
−1	1
3	1
−1	−2

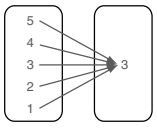




2. {(5, 3), (4, 3), (3, 3), (2, 3), (1, 3)}

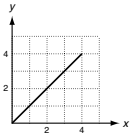
x	y
5	3
4	3
3	3
2	3
1	3





Give the domain and range of each relation. Tell whether the relation is a function. Explain.

3.



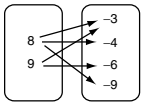
D: $\{0 \le x \le 4\}$

R: $\{0 \le y \le 4\}$

Function? yes

Explain: each domain value is paired with exactly one range value.

4.



D: {8, 9}

R: {−3, −4, −6, −9}

Function? no

Explain: both domain values are paired with more than one range value.

5.

x	y
1	4
2	5
0	6
1	7
2	8

D: {0, 1, 2}

R: {4, 5, 6, 7, 8}

Function? no

Explain: two domain values are paired with two range values.

LESSON 4-2

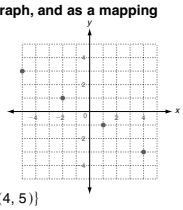
Practice B

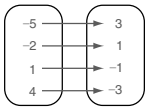
Relations and Functions

Express each relation as a table, as a graph, and as a mapping diagram.

1. {(−5, 3), (−2, 1), (1, −1), (4, −3)}

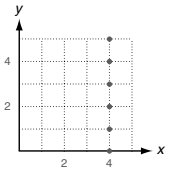
x	y
−5	3
−2	1
1	−1
4	−3

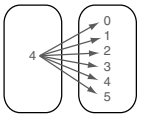




2. {(4, 0), (4, 1), (4, 2), (4, 3), (4, 4), (4, 5)}

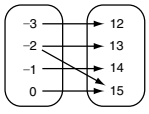
x	y
4	0
4	1
4	2
4	3
4	4
4	5





Give the domain and range of each relation. Tell whether the relation is a function. Explain.

3.



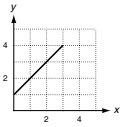
D: $\{-3, -2, -1, 0\}$

R: {12, 13, 14, 15}

Function? no

Explain: −2 is paired with both 13 and 15.

4.



D: $\{0 \le x \le 3\}$

R: $\{1 \le y \le 4\}$

Function? yes

Explain: each domain value is paired with exactly one range value.

5.

x	y
8	8
6	6
4	4
2	6
0	8

D: {0, 2, 4, 6, 8}

R: {4, 6, 8}

Function? yes

Explain: each domain value is paired with exactly one range value.

LESSON 4-2

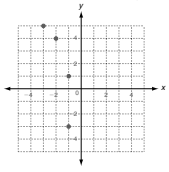
Practice C

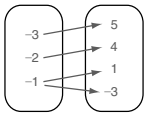
Relations and Functions

Express each relation as a table, as a graph, and as a mapping diagram.

1. {(−3, 5), (−2, 4), (−1, 1), (−1, −3)}

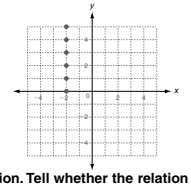
x	y
−3	5
−2	4
−1	1
−1	−3

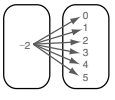




2. {(−2, 0), (−2, 1), (−2, 2), (−2, 3), (−2, 4), (−2, 5)}

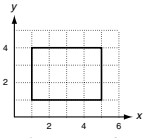
x	y
−2	0
−2	1
−2	2
−2	3
−2	4
−2	5





Give the domain and range of each relation. Tell whether the relation is a function. Explain.

3.



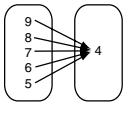
D: $\{1 \le x \le 5\}$

R: $\{1 \le y \le 4\}$

Function? no

Explain: all domain values are paired with more than one range value.

4.



D: {5, 6, 7, 8, 9}

R: {4}

Function? yes

Explain: each domain value is paired with exactly one range value.

5.

x	y
1	1
2	2
3	3
4	4
5	5

D: {1, 2, 3, 4, 5}

R: {1, 2, 3, 4, 5}

Function? yes

Explain: each domain value is paired with exactly one range value.

LESSON 4-2

Reteach

Relations and Functions

A **relation** is a set of ordered pairs. The relation can be in the form of a table, graph, or mapping diagram. The **domain** is all the *x*-values. The **range** is all the *y*-values.

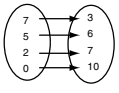
Find the domain and range.

x	3	4	5	6
y	1	2	2	3

D: {3, 4, 5, 6}; R: {1, 2, 3}

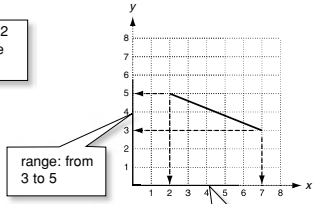
Do not list 2 twice in the range.

Find the domain and range.



D: {7, 5, 2, 0}; R: {3, 6, 7, 10}

Find the domain and range.



range: from 3 to 5

domain: from 2 to 7

D: $2 \le x \le 7$
R: $3 \le y \le 5$

Find the domain and range of each relation.

1.

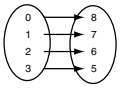
x	−2	−1	0	1
y	4	1	0	4

D: {−2, −1, 0, 1}; R: {4, 1, 0}

2. (4, 5) (−2, 6) (−5, 12)

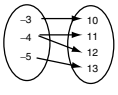
D: {4, −2, −5}; R: {5, 6, 12}

3.



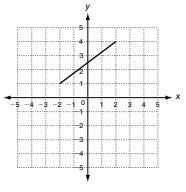
D: {0, 1, 2, 3}; R: {5, 6, 7, 8}

4.



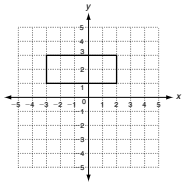
D: {−3, −4, −5}; R: {10, 11, 12, 13}

5.



D: $-2 \le x \le 2$; R: $1 \le y \le 4$

6.



D: $-3 \le x \le 2$; R: $1 \le y \le 3$