

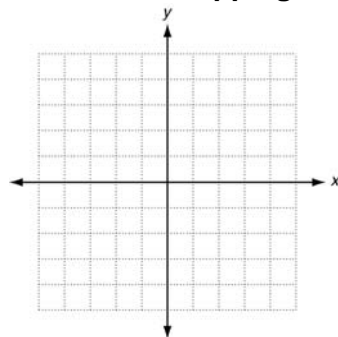
LESSON
3-2

Practice B
Relations and Functions

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

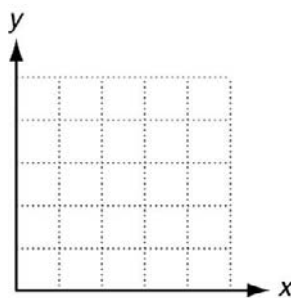
1. $\{(-5, 3), (-2, 1), (1, -1), (4, -3)\}$

x	y

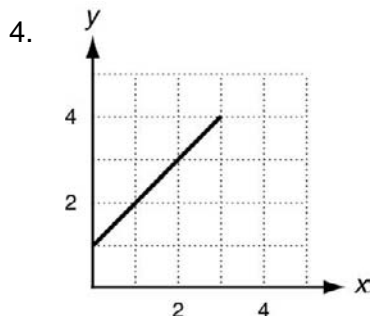
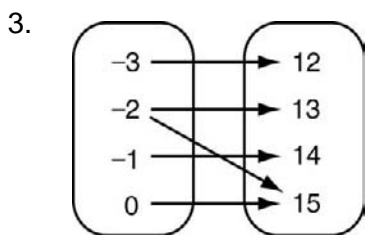


2. $\{(4, 0), (4, 1), (4, 2), (4, 3), (4, 4), (4, 5)\}$

x	y



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



5.

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

D: _____

D: _____

D: _____

R: _____

R: _____

R: _____

Function? _____

Function? _____

Function? _____

Explain: _____

Explain: _____

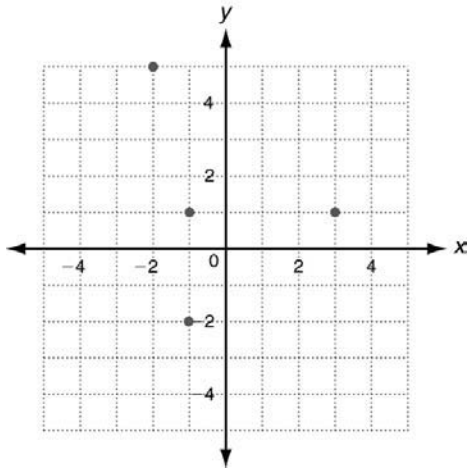
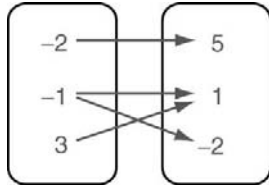
Explain: _____

3-2 RELATIONS AND FUNCTIONS

Practice A

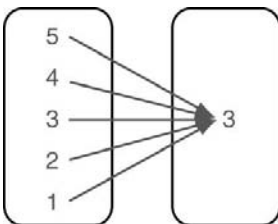
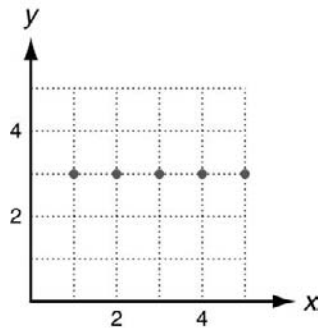
1.

x	y
-2	5
-1	1
3	1
-1	-2



2.

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



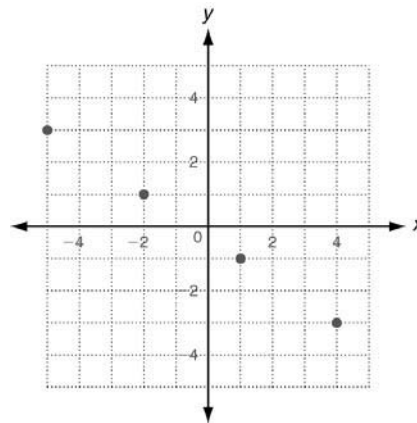
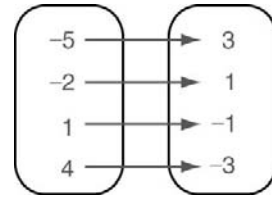
- $\{0 \leq x \leq 4\}$; $\{0 \leq y \leq 4\}$; yes; each domain value is paired with exactly one range value.
- $\{8, 9\}$; $\{-3, -4, -6, -9\}$; no; both domain values are paired with more than one range value.

- $\{0, 1, 2\}$; $\{4, 5, 6, 7, 8\}$; no; two domain values are paired with two range values.

Practice B

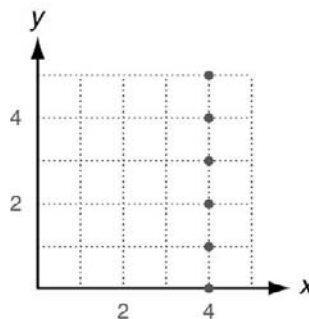
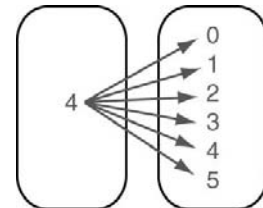
1.

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



2.

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



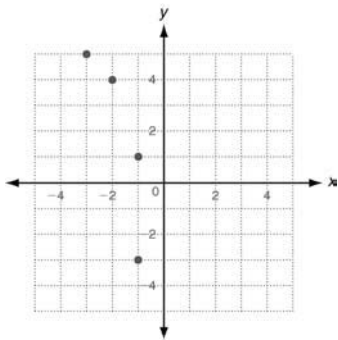
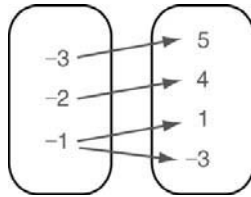
- $\{-3, -2, -1, 0\}$; $\{12, 13, 14, 15\}$; no; -2 is paired with both 13 and 15.
- $\{0 \leq x \leq 3\}$; $\{1 \leq y \leq 4\}$; yes; each domain value is paired with exactly one range value.

5. $\{0, 2, 4, 6, 8\}$; $\{4, 6, 8\}$; yes; each domain value is paired with exactly one range value.

Practice C

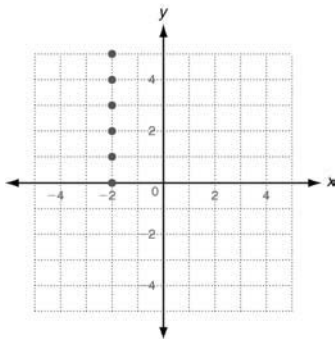
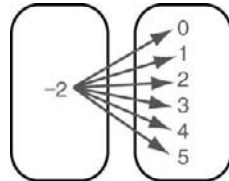
1.

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



2.

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



3. $\{1 \leq x \leq 5\}$; $\{1 \leq y \leq 4\}$; no; all domain values are paired with more than one range value.
4. $\{5, 6, 7, 8, 9\}$; $\{4\}$; yes; each domain value is paired with exactly one range value.

5. $\{1, 2, 3, 4, 5\}$; $\{1, 2, 3, 4, 5\}$; yes; each domain value is paired with exactly one range value.

Review for Mastery

- D: $\{-2, -1, 0, 1\}$; R: $\{4, 1, 0\}$
- D: $\{4, -2, -5\}$; R: $\{5, 6, 12\}$
- D: $\{0, 1, 2, 3\}$; R: $\{5, 6, 7, 8\}$
- D: $\{-3, -4, -5\}$; R: $\{10, 11, 12, 13\}$
- D: $-2 \leq x \leq 2$; R: $1 \leq y \leq 4$
- D: $-3 \leq x \leq 2$; R: $1 \leq y \leq 3$
- No; -3 is paired with both 2 and 3.
- Yes; each domain value is paired with exactly one range value.
- No; several domain values are paired with more than one range value.

Challenge

- multiples of 5: $\dots, -15, -10, -5, 0, 5, 10, 15, \dots$
- multiples of k : kn
- 0, 1, 2, 3, 4, 5, 6, 7, 8, 9
- If P has coordinate a , Q has coordinate b , assign $\frac{a+b}{2}$.
- If P has coordinate a , assign $|a|$.
- If P has coordinate a and Q has coordinate b , assign $|a - b|$.
- a. If the length of a side of square X is s , then $P(\text{square } X) = 4s$.
b. If the length of a side of square X is s , then $A(\text{square } X) = s^2$.
- a. The function rotates square A 120° counterclockwise about point O .
b. The set of all squares.
- a.

1, 1	1, 2	1, 3	1, 4	1, 5	1, 6
2, 1	2, 2	2, 3	2, 4	2, 5	2, 6
3, 1	3, 2	3, 3	3, 4	3, 5	3, 6
4, 1	4, 2	4, 3	4, 4	4, 5	4, 6
5, 1	5, 2	5, 3	5, 4	5, 5	5, 6
6, 1	6, 2	6, 3	6, 4	6, 5	6, 6

- b. $\{2, 3, 4, 5, 6, 7, 8, 9, 10, 12\}$